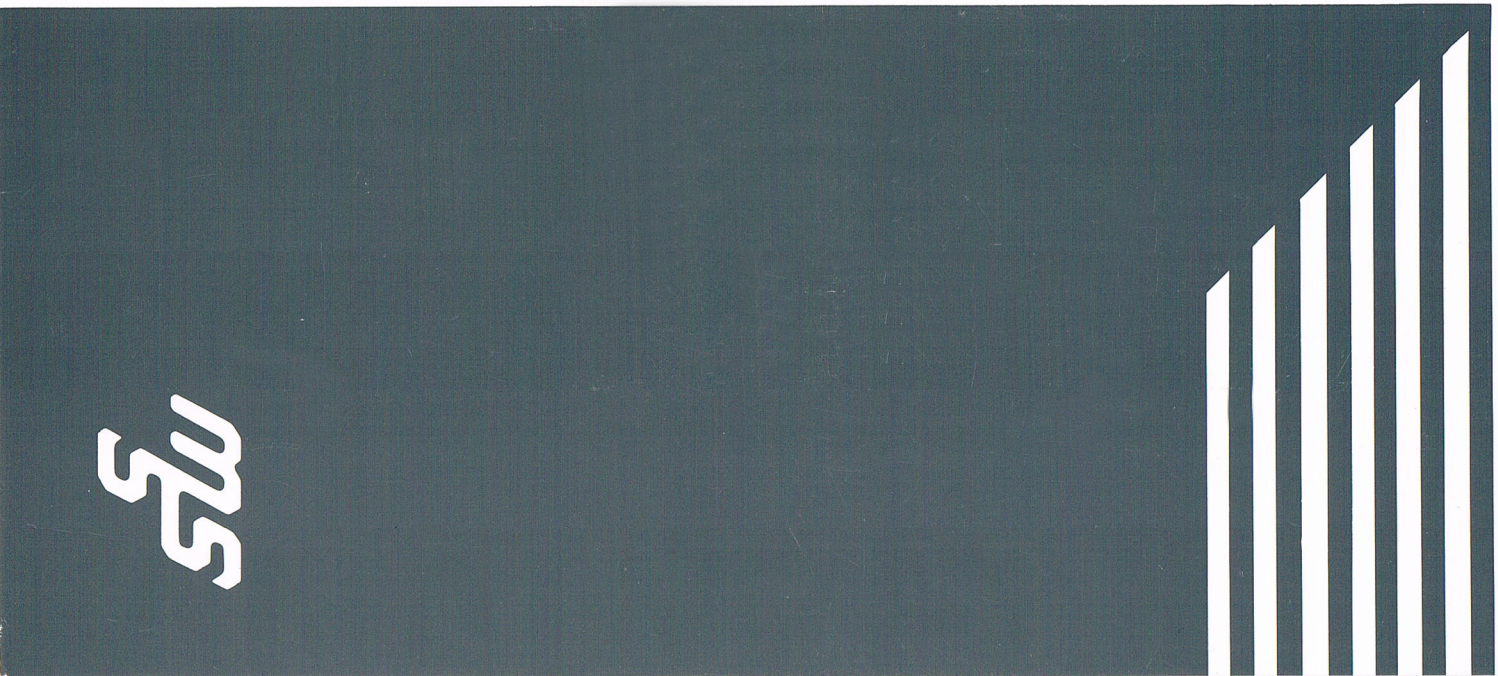
ANALYZE!



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However, installation on multiple CPUs is specifically prohibited. Reasonable corporate site licenses are available.

TECHNICAL SUPPORT

If you have questions about, or problems with **ANALYZE!**, you can write or call:

Micro-Systems Technical Support
4301-18 Oak Circle
Boca Raton, FL 33431
(305) 391-5077

Technicians are available to answer your questions from 9 a.m. until 5 p.m. Monday through Friday, Eastern Standard Time. Less pressing matters can be referred to the BBS.

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Micro-Systems Software maintains a bulletin board online 24 hours a day, 7 days a week. You may call here to ask questions during non-business hours. The bulletin board supports 300, 1200, or 2400 bits per second and any parity/word length setting. The number is: (305) 737-1590.

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Visit us on the CompuServe SIG we SYSOP; the TeleComm Group. Type GO TELECOMM from any prompt and leave a message to SYSOP in section 4 (MSS support). Our PPN is 76703,447, if you want to use EasyPlex.

TABLE OF CONTENTS

Page

PREFACE ix

CHAPTER 1: INTRODUCTION

Overview of **ANALYZE!** 1
What You Need to Use **ANALYZE!** 2
Making a Duplicate Copy of the Master Diskette 4
Duplicating **ANALYZE!** with One Drive 5
Duplicating **ANALYZE!** with Two Drives 7
Starting the Program 8
The Parts of the **ANALYZE!** Electronic Spreadsheet 9

CHAPTER 2: THE **ANALYZE!** BEGINNER'S TUTORIAL

Overview of the Beginner's Tutorial 11
What is a "Spreadsheet?" 11
Loading the **ANALYZE!** Program 14
Creating a Worksheet 15
Moving the Cell Pointer with the Keyboard 16
Moving the Cell Pointer with the Mouse 18
Status Indicators and Data Entry 19
Practice Entering Data into a Worksheet 23
Entering Various Types of Data into a Spreadsheet 24
Entering Values into Cells 25
Using the F9 Key when Entering Values 26
Rules for Entering Numerical Data (Values) 27
Entering Labels into Cells 27
Value Mode Versus Label Mode 29
Entering Formulas into Cells 29
Mathematical Operators 31
Entering Cell References in Formulas 33

Logical Operators 35
What To Do If You Make a Mistake (The Edit Mode) 36
Practice Using the Edit Mode 38
Using the F9 Key in the Edit Mode 39
Changing the Window Size 40
ANALYZE! Command Menus 40
ANALYZE! Keyboard Commands 42
Saving Your Worksheets into Files 43
The Archive Requester 44
Single Drive Owners 47
Archive Requester Gadgets 49
Quitting **ANALYZE!** 49

CHAPTER 3: THE **ANALYZE!** ADVANCED TUTORIAL

Overview of the Advanced Tutorial 51
Copying Worksheets 51
Working with Cells 55
What is a "Cell Range"? 56
What is a Cell Range Used For? 57
Copying Cells and Groups of Cells 58
Entering Cell Ranges Manually 58
Entering Cell Ranges with the Point Method 59
Changing the Anchored Cell 60
Erasing Cells in the Worksheet 63
Moving Cells and Cell Ranges 64
Labeling Items in Your Worksheet 65
Underlines 66
Totaling Your Figures 67
Creating a Bar Graph with + and - Symbols 69
Resetting Format Commands 71
Replacing an Existing Worksheet 72
Loading an Existing Worksheet 73
Selecting a File from Another Drive or Directory 73
Range Names and Range Name Labels 74
The Range Name Requester 74

Copying Ranges by Range Names 76
Creating a Formula 77
Relative and Absolute Formulas 77
Copying Formulas with Relative Addresses 77
Creating and Copying Formulas with Absolute Addresses 78
Copying Formulas with Relative and Absolute Addresses 79
Moving a Formula 80
Moving Cells Referenced in a Formula 80
Protecting and Unprotecting Entries 81
The Worksheet Global Format Commands 83
Global Status 83
Creating Fixed (Non-Scrolling) Titles 84
Printing an ANALYZE! Report 85
Choosing Print Options 86
Defining the Print Range 86
Initiating the Printing Procedure (GO) 86
Printing to a File 87
Setting Printer Preferences 87
Sorting Data 88

CHAPTER 4: THE **ANALYZE!** GRAPHS

Introduction 91
Memory Requirements 91
Overview 92
What Makes Up a Graph? 92
Creating a Graph with **ANALYZE!** 93
Defining the Elements of a Graph 93
Defining the Type of Graph 94
Adding Element Labels 94
Viewing the Graph 95
Changing Values and Re-Displaying the Graph 96
Using Legends and Titles 98
Defining Multiple Ranges and Graphs 101

Using Group Labels in a Graph 104
Archiving Graph Definitions 106
The Graph Menu 108
Graph Archive Definitions 108
Graph Archive Picture 109
Graph View 109
Graph Color 110
Graph Number 111
Graph Model 112
Graph Data 114
Graph Labels 115
Graph Titles 116
Graph Scale 117
Graph Reset 119
Graph Print 120

CHAPTER 5: THE **ANALYZE!** MACRO LANGUAGE

Introduction 121
What is a Macro? 121
Creating a Macro 121
Naming a Macro 124
Executing a Macro 125
Creating Macro Menus 128
Macro Keys 134
Macro Commands 137

CHAPTER 6: THE **ANALYZE!** BUILT-IN FUNCTIONS

The Built-in Functions 145
Special Forumla Functions 145
@ABS 145
@ACOS 145
@ASIN 146
@ATAN 146

@ATAN2 146
@AVG 147
@CHOOSE 147
@COS 148
@COUNT 148
@DATE 148
@DAY 149
@DEG 149
@ERR 149
@EXP 149
@FALSE 149
@FRAC 150
@FV 150
@HLOOKUP 150
@IF 151
@INT 151
@ISERR 152
@LN 152
@LOG 152
@MAX 152
@MIN 153
@MOD 153
@MONTH 154
@NPV 154
@PI 154
@PMT 155
@PV 155
@RAD 156
@RAND 156
@ROUND 156
@SIN 156
@SQRT 157
@STD 157
@SUM 157
@TAN 158
@TODAY 158
@TRUE 158

@VAR 158
@VLOOKUP 159
@YEAR 159

CHAPTER 7: THE **ANALYZE!** MENUS AND OPTIONS

Overview of the Menus and Options Section 161
Function Key Commands 161
ANALYZE! Command Menus 162
Using the Keyboard Commands 162
The Worksheet Menu 163
The Range Menu 173
The Print Menu 185
The Graph Menu 192
The Calculate Menu 206
The Sort Menu 209

GLOSSARY 211

INDEX Index-1

APPENDIX Appendix-1

WELCOME TO ANALYZE!

Congratulations on purchasing **ANALYZE!**, Micro-Systems Software's electronic spreadsheet program for the Commodore Amiga Personal Computer.

HOW TO USE THIS MANUAL

This manual will help you learn to use the ANALYZE! electronic spreadsheet program. It is divided into seven chapters.

- Chapter 1, Introduction, explains basic spreadsheet concepts and discusses hardware requirements.
- Chapter 2, The **ANALYZE!** Beginners Tutorial, explains how to run **ANALYZE!**, how to enter and save information into a spreadsheet and exiting the **ANALYZE!** program.
- Chapter 3, The **ANALYZE!** Advanced Tutorial, continues with the topics covered in Chapter 2 and covers more subjects in greater detail.
- Chapter 4, The **ANALYZE!** Graphs Functions, explains how to create and use graphs to better display your data.
- Chapter 5, The **ANALYZE!** Macro Language, explains how to automate your spreadsheets to perform many common functions.
- Chapter 6, The **ANALYZE!** Built-in Mathematical Functions, explains the use of the mathematical @functions (At functions).
- Chapter 7, The **ANALYZE!** Menus and Options, offers information on command menu options and function key commands.

After becoming familiar with the **ANALYZE!** program, this manual will continue to be of value as a quick reference guide. To find information on different functions and commands, refer to the Table of Contents or Index and turn to the page containing the information you want to review.

If you need additional information about **ANALYZE!**, contact Micro-Systems Technical Support advisors who are always happy to answer your questions.

TERMS USED

In this manual you may be prompted to press the <ESC> or the <RETURN> key, among others. These keys are plainly marked on your keyboard; the <ESC> key is in the upper left-hand side of the keyboard and the <RETURN> or <Enter> key is located by the four arrow keys on the right side of the keyboard.

If instructed to press an <ALT>-N, you would hold down the <ALT> key and press the letter "N" at the same time. The same holds true if told to press a <CTRL>-X or Right Amiga C. Both keys should be pressed simultaneously. Remember that the Right and Left Amiga keys are different from each other and are located on either side of the space bar, whereas either of the <ALT> keys can be used if told to press an <ALT>-key combination.

Your left mouse button will sometimes be referred to as the "Select button" and the right mouse button as the "Menu button".

You will often be instructed to enter information into a requester. A requester is an item that appears in the window looking for information before performing a function. A requester can be as simple as a small box with an input prompt or as complex as our Archive requesters.

Gadgets are items on a requester that perform functions related to the requester. They are also used to tell a requester to accept the information you've entered or to cancel a requester. Gadgets are often surrounded by small boxes and can be activated by pressing the left mouse when the mouse pointer is positioned directly over the gadget. When using KickStart 1.2, most gadgets can be selected by pressing the first letter of the gadget from the keyboard.

Icons are "pictures" of disks or programs. To activate an icon, press on it twice in quick succession with the left mouse button while the mouse pointer is on the icon. Your Amiga User's Manual refers to this as "double-clicking on an icon".

ANALYZE!'s menus are accessed by pressing down the right mouse button and moving the mouse pointer to the title bar at the top of the window. The menu titles will appear on the title bar. When the mouse pointer is on a menu title, the rest of the menu will appear below it. This is known as a pull-down menu. Selecting a menu item would be accomplished by holding down the right mouse "menu" button, highlighting a particular function, and then releasing the mouse button.

Multiple menu functions can be performed by pressing the left mouse button on the function while still holding down the right mouse button. The menu functions will be performed in the order they were originally selected. This allows you to have a series of functions performed one right after the other without having to go back to the title bar to select the next item.

Scroll bars are gadgets that allow the user to easily view a larger display than will fit in a window. If you don't understand this fully, the examples we will give should clear up any confusion.

If we refer to a program as being "loaded" or "booted", we mean that a copy of the program has been placed in memory from the floppy disk - the same as saying the program is running. You would boot up your Amiga by turning it on or holding down the <CTRL> key and both Amiga keys simultaneously.

A spreadsheet refers to the type of program **ANALYZE!** is and worksheet refers to your actual data (i.e. you use a spreadsheet program to make worksheets). The terms "worksheet" and "spreadsheet" mean essentially the same thing, and this manual uses them as if they were synonymous.

Now that you are familiar with some of the terms used in the manual, we can move on to more important things. The next step will be to make a working copy of your **ANALYZE!** master disk.

CHAPTER 1
INTRODUCTION

OVERVIEW OF ANALYZE!

Electronic spreadsheets are the microcomputer version of the accountant's favorite tool: the ruled ledger book. Just as this ledger book is made up of a grid of rows and columns, so is **ANALYZE!**'s window divided into rows and columns. **The location where a row intersects with a column is called a cell.** Each cell can contain values (numbers), labels (text), or formulas. Since each column (columns run vertically) has a letter and each row (rows run horizontally) has a number, cells are identified as A1, G10, and BB128.

The computer screen functions as a window over the actual spreadsheet; you can only see a part of the spreadsheet at any given time. As you move the cell pointer, or use the scroll bars located at the right and bottom of the window, the window also moves, displaying the different parts of the spreadsheet.

The cell pointer, a highlighted video bar, always displays the current cell. In addition, the cell address appears in the upper left hand corner of the window. The cell pointer is your most important tool when learning **ANALYZE!**, because **ANALYZE!** is operated by positioning the cell pointer to specific cells and entering data, or commands.

Sometimes you will want to address a group of cells at the same time because those cells are directly related to each other. A group of cells is called a cell "range". This subject is covered in detail later, because cell ranges are important when using a spreadsheet program.

WHAT YOU NEED TO USE ANALYZE

ANALYZE! requires a Commodore Amiga with 512K of RAM and one or more disk drives.

ANALYZE! is delivered on a copy of Workbench/Intuition 1.1. You must use Kickstart 1.1 to boot up your Amiga. **ANALYZE!** will not function with versions of Kickstart earlier than 1.1. When prompted for a Workbench diskette, insert the **ANALYZE!** master.

ANALYZE! is compatible with KickStart and Workbench 1.2. If you have Workbench 1.2 you will need to copy the appropriate **ANALYZE!** files from the Workbench 1.1 diskette to your 1.2 Workbench diskette. This can be accomplished by dragging the **ANALYZE!** icon and its associated Worksheets drawer over to the 1.2 Workbench window. The Startup-Sequence must also be copied from your **ANALYZE!** disk onto your 1.2 Workbench diskette. To copy your Startup-Sequence to another disk, type the following information from CLI:

```
COPY ANALYZE!:S/STARTUP-SEQUENCE TO WORKBENCH:S/STARTUP-SEQUENCE
```

If the volume name of the destination disk is not "Workbench", substitute the proper volume name.

ANALYZE! comes with a modified Startup-Sequence that contains a command to allow **ANALYZE!**'s project icons to locate **ANALYZE!** when you wish to load **ANALYZE!** automatically with a spread-sheet. project icon. Your Startup-Sequence file can be found in your S sub-directory. It contains the following additional command:

ASSIGN SYS: :

This command informs any project icon selected to look for **ANALYZE!** on the boot disk. If you do not wish to load **ANALYZE!** from its boot disk, adjust the Startup-Sequence to something similar to this:

ASSIGN SYS: DF1:

This would have any **ANALYZE!** project icon look to your external drive to load **ANALYZE!**. Other possibilities are:

ASSIGN SYS: RAM:

or

ASSIGN SYS: DATASHEETS:

The first selection assumes that **ANALYZE!** is located in RAM:, while the other would look for any diskette that contained the volume name of "DATASHEETS".

This should only be done if you are thoroughly familiar with AmigaDOS. **ANALYZE!** will work perfectly the way it was shipped to you. This information has been provided for users who have their systems configured differently. If you are unsure how to implement some of these commands, please purchase an AmigaDOS reference manual from your local bookstore; our technical support people are more than happy to assist you with any problems you may have with **ANALYZE!**, but AmigaDOS questions should always be referred to your local dealer.

Now, you would be able to boot up from a diskette other than the one that contains **ANALYZE!** and be assured that the Project Icons will work correctly. Remember that the Startup-Sequence is read only by the disk inserted when asked to insert the Workbench diskette. **ANALYZE!** may not work with some beta copies of Kick-Start 1.2. It has been found to work successfully with versions 33.169 and later, including the official release of the 1.2 operating system. There are several enhancements available under the 1.2 operating system. They include, but are not limited to:

Input areas for many requesters do not have to be selected with the left mouse button before entering information. You will automatically

be able to enter the information from the keyboard. All requesters accept first letter commands to select individual gadgets. If a requester has an "OK" and "CANCEL" gadgets, the letters, "O" or "C" can be pressed from the keyboard instead of using the mouse pointer to do the same thing. In addition, "Y"es or "N"o are also acceptable responses in some instances. Pressing any key when a requester just has an "OK" or "RESUME" gadget will cancel the requester.

When using requesters with **ANALYZE!**, be aware of several Amiga keys that enhance the use of requester prompts. The most important are:

Function	**Keyboard**
Clear Requester Line	Right Amiga X
Move To Begin. Line	Shift Left-Arrow
Abort Requester Entry	Right Amiga Q

Consult your Amiga User's Guide (CBM Product Number 327624) for more information concerning requester prompts.

ANALYZE! is compatible with most add-on Memory Expansion boards and hard disks that operate using AmigaDOS.

Now, continue onto the next section to make a duplicate copy of the master diskette. Follow the instructions completely and file the master disk away for safekeeping.

MAKING A DUPLICATE COPY OF THE MASTER DISKETTE

The disk that **ANALYZE!** is on contains a copy of Workbench 1.1. This means that you can use this disk to boot up your Amiga when it asks for the Workbench diskette. **ANALYZE!** is not compatible with KickStart and Workbench version 1.0. To make a backup

diskette, insert your **ANALYZE!** master disk after re-booting your machine by pressing both Amiga keys and the <CTRL> key simultaneously.

Please make sure the copy of Kickstart you put into the machine when you first power it up is version 1.1.

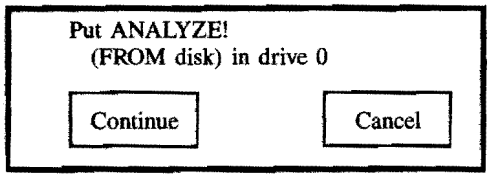
ANALYZE! is not copy-protected. At Micro-Systems Software, Inc., we feel quality software at a reasonable price is the best way to encourage people to purchase the program instead of "sharing" it. Giving away commercial software is stealing and may force us to raise our prices. Because of the lack of copy protection, you can make a duplicate copy of the master diskette.

NOTE: The following information tells you how to make a duplicate copy of the **ANALYZE!** diskette using Workbench. If you want to do this from CLI, use the DiskCopy utility program as described in the AmigaDOS User's Manual (CBM Product Number 327624).

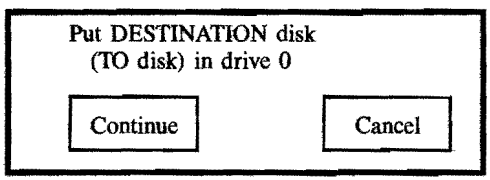
DUPLICATING ANALYZE! WITH ONE DRIVE

Boot up the **ANALYZE!** diskette and wait until the Workbench screen appears. Select the icon of the **ANALYZE!** disk by pointing at it with the mouse and pressing the left mouse button twice in succession. (The disk icon's shutter will move from the right to the left.)

Press and hold the right mouse button. A list of menus will appear along the top of the screen. While continuing to hold the right mouse button, point at the first menu; Workbench. When the pull-down menu appears, move the mouse pointer down until the word "Duplicate" is highlighted and release the right mouse button. A message should appear:



Since the **ANALYZE!** disk is already in drive 0, select "Continue". DiskCopy will begin reading tracks and when memory is full, the next message appears:



Wait until the red light on the disk drive goes out and replace the **ANALYZE!** diskette with the disk you want to use for your duplicate copy (it can be blank or previously formatted, it doesn't matter). Select "Continue" and DiskCopy will write the tracks it just read.

This procedure will continue, one disk after the other, until the **ANALYZE!** disk is duplicated. File the master away in a safe place and re-boot the Amiga using the duplicate copy.

NOTE: The new diskette will be named "copy of **ANALYZE!**" or "**ANALYZE!**", depending on the version of Workbench you are using and how you copied the disk. If you want to change this, just select the disk's icon as you did before and display the Workbench menu again. Instead of

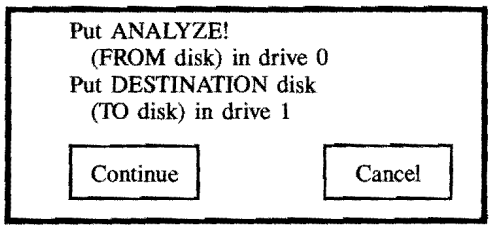
selecting Duplicate however, you'll select Rename. A prompt will appear that will let you edit the name of the disk to something shorter.

You may even want to make two or three duplicate copies in this manner, to safeguard against losing all of your diskettes containing **ANALYZE!**.

DUPLICATING ANALYZE! WITH TWO DRIVES

Boot up the **ANALYZE!** diskette and wait until the Workbench screen appears. Load the disk you wish to use for your duplicate copy into drive 1. It doesn't matter whether this disk is already formatted or not.

Point at the icon of the **ANALYZE!** disk with the mouse, press and hold the left mouse button. The disk icon's shutter will move from right to left and the mouse pointer should now appear as a circle with an "X" in the middle. (NOTE: KickStart 1.2 users, your mouse pointer will not change shape. Instead, you will actually be moving a "ghost" image of the disk icon.) Move the mouse pointer until it is over the icon for the disk you will use for the duplicate copy. If it is an unformatted disk, a name like "DF1:BAD" may appear. If previously formatted, you will see the disk's normal volume name. Release the button, and after a few seconds, a message appears:



Since your **ANALYZE!** disk is already in drive 0 and your destination disk is already in drive 1, select "Continue". DiskCopy will

begin reading and writing tracks. When it is done, your copy will be complete. File your master diskette away in a safe place and re-boot your Amiga using the duplicate.

NOTE: The new diskette will be named "copy of **ANALYZE!**" or "**ANALYZE!**", depending on the version of Workbench and how you copied the diskette. If you want to change this, just select the disk's icon as you did before and display the Workbench menu again. Instead of selecting Duplicate however, you'll select Rename. A prompt will appear that will let you edit the name of the disk to something shorter.

You may even want to make two or three duplicate copies in this manner, to safeguard against losing all of your diskettes containing **ANALYZE!**.

STARTING THE PROGRAM

To run **ANALYZE!** from Workbench, press the left mouse button twice in succession, while the mouse pointer is on the **ANALYZE!** icon. Should you decide to run **ANALYZE!** from CLI, instead of Workbench, the procedure is equally simple. Open a CLI, type the name of the program, **ANALYZE!**, and press the <RETURN> key.

Either way you choose to start the program, the result is the same. After a few seconds, **ANALYZE!** will load with a 16K default spreadsheet size. **ANALYZE!** uses a special spreadsheet structure (sparse matrix technology) to minimize the amount of memory used by empty cells in the spreadsheet, so 16K is more than enough for most applications.

ANALYZE! will automatically increase the amount of memory it needs when loading a spreadsheet from disk. For instance, **ANALYZE!** will load a 20K spreadsheet and leave enough extra memory to make changes to the spreadsheet.

Two options are available that allow you to change the maximum spreadsheet size within **ANALYZE!**. One is Worksheet Erase. CAUTION: When you erase a worksheet, you lose any work in progress — **always save your data.** A requester will appear asking you to confirm the erase. When you select the "OK" gadget, the worksheet will be erased and a prompt will appear at the top of the window asking for the amount of memory to partition. A "partition" is simply the amount of memory that **ANALYZE!** will use for the spreadsheet. The previous window size will appear. Delete that number and enter a larger one. The other option is to automatically load **ANALYZE!** with a pre-determined amount of memory by typing the following from CLI:

ANALYZE!=40

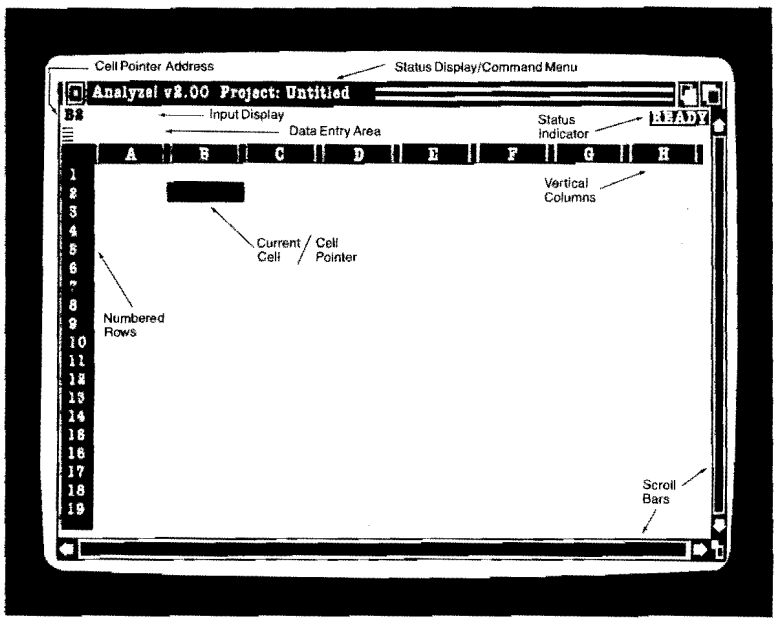
Because you can tell the program how much memory to use, you can make it easily compatible with the Amiga's multi-tasking environment. The worst possible thing Amiga programs can do is allocate all available memory when they load, leaving little or no memory for other programs.

Once **ANALYZE!** has been loaded into memory, the window will clear and display an empty spreadsheet.

THE PARTS OF THE ANALYZE! ELECTRONIC SPREADSHEET

The following illustration shows the terms used to refer to parts of the **ANALYZE!** electronic spreadsheet.

(See photo next page)


Cell Pointer Address
Status Display/Command Menu
Analyze! v2.00 Project: Untitled
B2
Input Display
Data Entry Area
Status Indicator
READY
A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
Vertical Columns
Current Cell / Cell Pointer
Numbered Rows
Scroll Bars

CHAPTER 2
THE ANALYZE! BEGINNER'S TUTORIAL

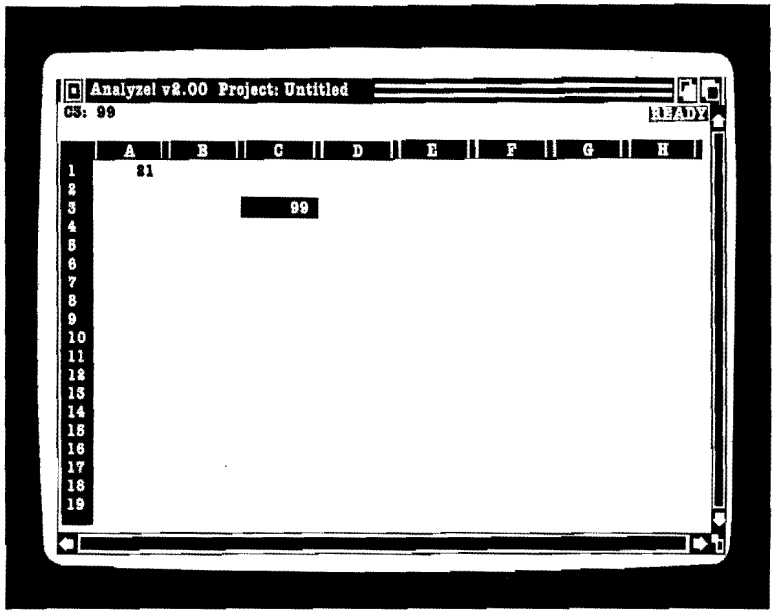
OVERVIEW OF THE BEGINNER'S TUTORIAL

This tutorial takes you step-by-step through the basics of operating the **ANALYZE!** electronic spreadsheet. It is here you will learn to start the **ANALYZE!** program, move about the worksheet, enter values and formulas, save your worksheets and exit the program successfully. Upon completion of this tutorial, it is our intention that you have a basic understanding of **ANALYZE!**.

WHAT IS A "SPREADSHEET?"

A spreadsheet is a work area divided vertically by lettered columns and horizontally by numbered rows. A cell exists at the intersection of each row and column. Each cell is identified by an address consisting of a letter and a number. For example, in the spreadsheet shown below, the number 21 is in cell A1 and the number 99 is in cell C3.

(See photo next page)

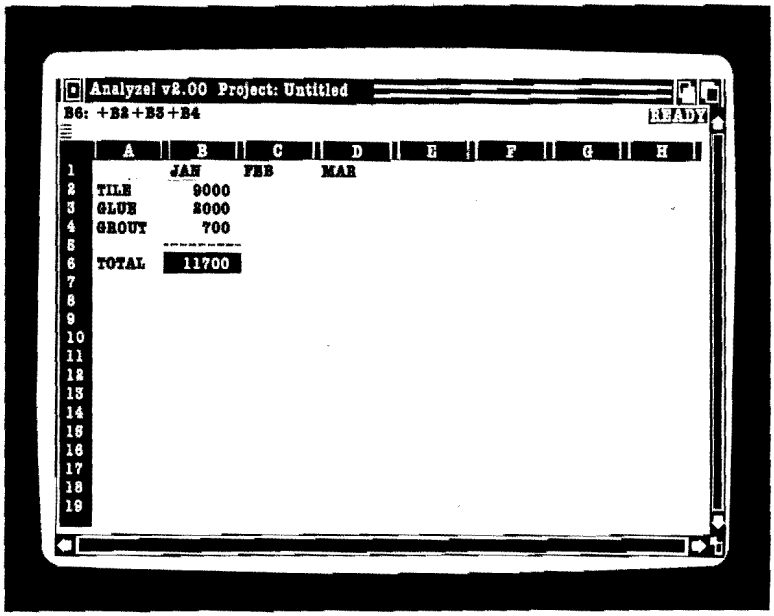


Within each cell, you can enter a number, label, or formula. A label is used to name a column or row. In the following example, column B is used to post January sales receipts. A cell label, JAN, has been entered in cell B1 to name the figures displayed in column B.

Beneath JAN are numbers representing product sales information. Cell A2 is a label that names the product for which sales are being tracked (TILE). Column B represents January sales and row 2 represents TILE. Cell B2 shows tile sales for January.

In cell B6, where the column B total is to be calculated, a formula has been entered: +B2+B3+B4. The results of the formula are displayed in cell B6, while the actual formula is visible at the top of the window when the cell pointer is placed in cell B6.

(See photo next page)



The real value of spreadsheets is their ability to create mathematical simulations or models. In the example provided, imagine that instead of actual sales, these are budget figures. With a spreadsheet, it is easy to change one assumption and see the effect upon the entire worksheet. For example, if you want to change GLUE sales to $2,500, move the cell pointer to cell B3 and enter 2500. The total in cell B6 is updated to 12200.

When using a pencil, paper and calculator, every time you change a number you have to re-calculate all the values. The more complicated your work, the longer the process takes. In the case above, it would have been pretty easy to understand that increasing one of the elements of the list you were adding up by $500 increases the total by the same amount. Were you working on a more intricate budget, one where percentages were calculated and spending projections were made based upon those percentages, every time you changed one number, you would have to recalculate all of the related numbers — which can rapidly become a tedious job!

One of the basic strengths of an electronic spreadsheet is that it performs all recalculations automatically. Each and every related number is recalculated and displayed in its updated form, all in the blink of an eye.

LOADING THE ANALYZE! PROGRAM

Perform the following steps to start the program:

1. Turn on your computer and insert the Kickstart diskette.

2. When the system prompts you to insert the Workbench diskette, insert your working copy of **ANALYZE!**.

3. Select the **ANALYZE!** disk icon with the mouse pointer and press the left mouse button twice in succession. This displays the Workbench screen options, including **ANALYZE!**.

4. You may start **ANALYZE!** in one of the following ways:

a. Select the **ANALYZE!** icon with the mouse and press the left mouse button twice in succession, or

b. From CLI, enter the command:

ANALYZE! and press <RETURN>

ANALYZE! will load with a default spreadsheet size of 16K. This is more than enough for most applications. When a spreadsheet is larger than 16K, **ANALYZE!** retrieves the spreadsheet from the disk and automatically increases the window size to make room for the spreadsheet and allow additional changes.

If you want to change the amount of memory allocated, select Worksheet Erase from the pull-down Worksheet menu with the right mouse button pressed down. A requester will appear with the message "Okay to ERASE Window?". Select the "OK" gadget by

pressing the left mouse button when the mouse pointer is located over that gadget. If you have data that you don't wished erased, store a worksheet to disk first. This will be covered a little further in the manual.

An "Enter memory to partition (K):" prompt will appear under the title bar with the default 16K value. Enter the amount of memory you want to allocate and press the <RETURN> key. If the amount of memory you requested is within the machine's limits, it will display a blank worksheet. If the amount you entered is not available, **ANALYZE!** leaves the prompt displayed, prompting you again.

ANALYZE! can be loaded from CLI with a default window size by entering the following:

ANALYZE!=40

This would automatically load ANALYZE! with a 40K window. If the window size is greater than the available memory, **ANALYZE!** will fail and return to CLI.

Because you can tell the program how much memory to use, you can make it easily compatible with the Amiga's multi-tasking environment. The worst possible thing Amiga programs can do is allocate all available memory when they load, preventing other programs from being run.

OPERATING YOUR ANALYZE! PROGRAM

CREATING A WORKSHEET

When you load **ANALYZE!**, the system displays a blank worksheet with the cell pointer (a highlighted video bar) located in position A1. **ANALYZE!** is ready for you to begin entering information into the worksheet.

The location of the cell pointer is important. At the moment, it is located in cell A1. What this means is that whatever you type will get placed into that cell. Just like an accountant writes to different portions of the ruled ledger sheet by moving his pencil and writing, you will write to different portions of the worksheet by moving the cell pointer and typing. Let's practice this a little.

Type in the number 21 and press the <RETURN> key. The number should appear in cell A1 unless you moved the cell pointer. Now press the down arrow key. The cell pointer has moved to A2. Enter another two-digit number in cell A2. This time do not press <RETURN>, but press the down arrow key instead. The program puts the number in the worksheet and the cell pointer moves down one cell, ready for another number.

Wherever you move the cell pointer, that's where your input will go. When you want to type something into a cell, you can either type it in and press <RETURN>, which enters the data and leaves the cell pointer on that cell, or you can type it in and move the cell pointer to another location, which automatically enters the data.

Since the cell pointer is so important, the commands you use to move it around are equally important. Let's review.

MOVING THE CELL POINTER WITH THE KEYBOARD

The simplest way to move the cell pointer with the keyboard is to use the arrow key cluster. This moves the cell pointer one cell in the direction of the arrow (i.e. pressing the up arrow key moves the cell pointer one cell up in the worksheet, pressing the right arrow key moves the cell pointer one cell to the right in the worksheet, etc.). If you try and move the cell pointer outside of the worksheet, or into an area that is being used as a title, **ANALYZE!** will beep at you to signal your error. If you're at the edge of the window, and there is more worksheet to display in the direction you're moving,

the window will scroll to reveal more of the worksheet.

You can never move the cell pointer off the window. **ANALYZE!** will either move the window so that you can see the cell pointer again, or it will sound a tone. So, by moving the cell pointer, you can also move the window.

The next level of cell pointer movement involves the SHIFTED arrow keys; hold down one of the shift keys and press an arrow key. The cell pointer moves according to the following table:

Key	Movement
Shift-Up	Moves up one "page"
Shift-Down	Moves down one "page"
Shift-Left	Moves one "page" to the left.
Shift-Right	Moves one "page" to the right.
<ALT>-Up	Moves to the first data cell of the worksheet. Usually, this is A1, but you can use horizontal and vertical titles, which cause the first cell available for DATA entry to be somewhere else.
<ALT>-Down	Moves to the row, column intersection of the last row to contain data and the last column to contain data. While this cell may not itself contain any data, it is still the "lower right hand corner" of the worksheet space being used.

A "page" in the spreadsheet is defined as the number of rows and columns that can be displayed in the current window size. It is not a fixed number, so if you use the Shift-Right arrow key to move several pages, you can rest assured that you will not miss anything.

The final level of cell pointer movement is direct, with the GOTO function key <F5>. Cell columns are labeled "A" to "IV" and row numbers range from "1" to "8192". Let's assume that you want to position the cell pointer to cell IV8192 (the last cell in the work-

sheet). Even with page scrolling, it will take some time to get there. However, you can tell **ANALYZE!** to go DIRECTLY to that cell by using GoTo. To use this function, just press the <F5> function key. You'll see the following prompt:

Enter address to go to: (current cell)

If you want the cell pointer to remain at the same address, press the <RETURN> or <ESC> key. To place the cell pointer at a new cell address, type in the new cell address and press the <RETURN> key. The current cell address at the prompt will be deleted and replaced with what you type. **ANALYZE!** will take you directly to the specified cell, with no waiting for the window to scroll.

MOVING THE CELL POINTER WITH THE MOUSE

The easiest method of moving the cell pointer with the mouse is to point at a cell that is visible in the current window and press the left mouse button. The cell pointer will instantly appear in the cell you were pointing at.

You may use the mouse to in conjunction with the scroll bars located on the right hand and bottom borders of the window. The bottom scroll bar scrolls horizontally within the worksheet, and the right hand scroll bar scrolls the worksheet vertically.

The scroll gadget consists of two arrow symbols and a box that contains the scrolling device. The arrow symbols scroll the window one row or column, depending on which scroll gadget you're using, ((right hand = rows) and (bottom = columns)) in the indicated direction. If you select one of the arrows and continue to hold the mouse button, the scroll will repeat.

The scroll bars work two ways. The open area of the scroll gadget represents a portion of the worksheet that you **CANNOT** see with

your current window size, and the solid area represents that which you CAN. You can point at the open area above or below the solid area and press the left button, which scrolls the worksheet one "page" in the direction indicated. Or, you can point at the scroll bar, press and hold the left mouse button, and move it. When you release the left mouse button, **ANALYZE!** places the window at the new relative position in the spreadsheet indicated by where you released the scroll bar.

When **ANALYZE!** is booted up, the scroll bars are solid. They will remain that way until data is entered that cannot be displayed in the current window. However, the scroll arrows may be used at any time.

One advantage of using the scroll bars to move the window is the window can be slightly adjusted WITHOUT having to move the cell pointer from its current location. This can save you scrolling over to the edge of the window, moving the window the desired amount and scrolling back to the cell you were editing.

STATUS INDICATORS AND DATA ENTRY

Now is a good time to become familiar with the information that can be displayed in the input area at the top of your window. There are three pieces of information that you will find useful. The Cell Pointer Address, Data Entry Area and Status Indicator. They work together to keep you informed as to what is going on while you enter data into **ANALYZE!**.

The Cell Pointer Address: Is located in the upper left hand corner of your window, just below the title bar. The address serves a dual purpose, letting you know what cell the cell pointer is currently located at and displaying the contents of that cell. The information will appear something like this:

A1: (G) 11

Let's look at the different parts of this.

```
A1: (G) 11
^^^
```

This is the cell pointer's current location. It's over cell A1.

```
A1: (G) 11
    ^^^
```

This is the "format" of the cell. In this case, (G) means that the cell is in "general" format. Cell formatting is a powerful capability of **ANALYZE!** that lets you control how the data in the cell will appear on the screen and on the printer. We will cover cell formatting in detail later.

```
A1: (G) 11
        ^^
```

The contents of the cell are displayed here. This example cell contains a two digit number; 11. If the cell contains a formula, you will see the formula listed here, while the cell itself, within the worksheet, will display the results of that formula. If the results of a formula do not look correct on the screen, you can position the cell pointer to that cell and check the formula at the top of the window. If it's incorrect, you'll be able to edit it.

The Data Entry Area: Is located underneath the Cell Pointer Address. Most of the time, it appears as a blank line. It contains information when you are typing something into **ANALYZE!**, or **ANALYZE!** is prompting you for some information. It is here that you enter information before it is placed into the worksheet. When you were entering those numbers earlier, you may have noticed this happening.

What happens if you are typing in some data and you realize that you don't want it entered into a cell (as might happen if you suddenly notice that the cell pointer is over the wrong cell)? Press the <ESC> key on the upper left hand side of the keyboard, and your input will erased. When you're entering data, whether it's a

value (number), label (text), or formula, it's not entered into the worksheet until you press the <RETURN> key or one of the direction keys. Until then, you may press the <ESC> key to quit from entering information.

The Status Indicator: Is located in the upper right hand corner of your window and appears as a single highlighted word. Most of the time, this will be the word READY, indicating that **ANALYZE!** is awaiting input. There are several others, defined as follows:

Word	Meaning
READY	**ANALYZE!** is waiting for you to do something.
WAIT	**ANALYZE!** is busy carrying out your last instruction and will accept no input at the moment.
VALUE	**ANALYZE!** has determined from your input that you are entering a number or a formula.
LABEL	**ANALYZE!** has determined from your input that you are entering a label.
POINT	When **ANALYZE!** prompts you to enter a cell range, you can type in the range coordinates from the keyboard or "point" them out with the keyboard's arrow keys or with the mouse pointer — in which case **ANALYZE!** enters the point mode.
EDIT	If you want to change a cell's contents without retyping it completely, you can position the cell pointer over the cell and press the <F2> function key. The contents of the cell will appear in the data entry area.

There are two other words that can appear in the Status Indicator area, CIRC and CALC. CIRC indicates that your worksheet contains

a "circular reference". This occurs when some formula that you've entered contains a reference to itself. Let's take a simple example. If you type the following formula into cell A1:

+A1+B1

it will produce a circular reference. If you look at it, you'll realize that the formula is telling **ANALYZE!** to add the contents of cells A1 and B1. Nothing wrong with that, except that since the formula is in cell A1, it must add itself to B1 before displaying a value. When you see the word CIRC appear in the area of the Status Indicator, it's telling you that somewhere in your spreadsheet you have a formula that wants to calculate the value of a cell that includes itself as part of the formula.

The word CALC will appear when the worksheet has been changed, and you are set for Manual Calculate, informing you that you need to press the <F9> function key (Recalculate the entire sheet). **ANALYZE!** can function in either a Manual Calculate mode or an Automatic Calculate mode. In Automatic Calculate mode, each time you enter a number, **ANALYZE!** recalculates all of the formulas in your worksheet, on the chance that something you just entered may affect one of them. This is what lets those totals update themselves "magically" as you enter items into your budget. Which mode you currently using is controlled with the various commands on the Calculate menu.

Even with **ANALYZE!**'s superior recalculation speed, a Manual Calculate may be needed if you have an extensive worksheet with many formulas and little desire to wait for **ANALYZE!** to recalculate the entire worksheet each time you type in some data. So, you set **ANALYZE!** for Manual Calculate, it lets you type in data as fast as you want, but signals you to press the Recalculate function key <F9> manually when it senses that values may have changed.

The Status Indicator is often useful in determining why something doesn't seem to be working. You've learned that the cell pointer is the highlighted video block that you move around the spreadsheet

and when you type one of the arrow keys, the cell pointer should move in that direction. If you type an arrow key to move the cell pointer, and it doesn't budge, a glance at the Status Indicator will tell you what mode **ANALYZE!** is in. If it doesn't show READY, you should press the <ESC> key until it does.

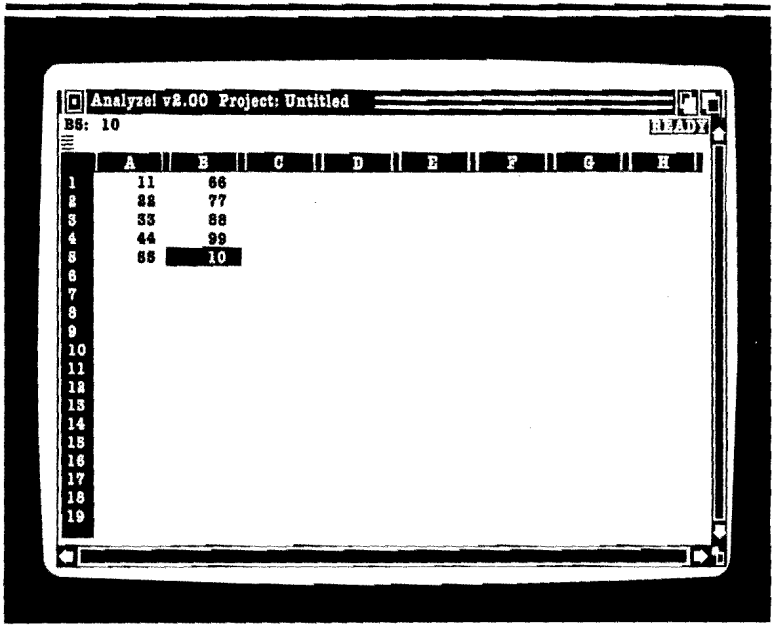
This could happen should you begin entering a number and then change your mind. You backspace over all the digits of the number, but a glance at the Status Indicator shows you that **ANALYZE!** is still in the VALUE input mode. Pressing the <ESC> key will exit you to the READY mode.

Of all the various modes reflected by the Status Indicator listed above, the cell pointer will only move when **ANALYZE!** is in the READY mode. And pressing the <ESC> key will eventually return to the READY mode from any of the other modes.

PRACTICE ENTERING DATA INTO A WORKSHEET

Now that we've discussed moving the cell pointer and entering simple data, it's time to practice what you've learned. Please enter the following numbers in all cells from A1 to A5 and B1 to B5 as shown below:

(See photo next page)



If there is data in some of the cells, left over from when you practiced entering and moving, just put the cell pointer on those cells and type in the new information. **ANALYZE!** will replace the previous contents.

Entering numbers into a worksheet is easy once you understand how to move the cell pointer. As mentioned earlier, if all you could do with a spreadsheet program is enter numbers and look at them, there would be no real advantage over pen, paper, and calculator. In addition to numbers, your **ANALYZE!** spreadsheet program can accommodate "labels" and "formulas".

ENTERING VARIOUS TYPES OF DATA INTO A SPREADSHEET

All of the information you type into **ANALYZE!** will fall into one of three categories: Value, Label, or Formula. Each serves a different and equally important function. Let's look them over.

- Values, are numbers. This is the basic data that your spreadsheet will work with.

- Labels, are used to identify an area of the spreadsheet. A label that identifies the entire spreadsheet is called a title. A label identifies a row or column of data, shows the result of a calculation, or indicates a location to input new data.

- Formulas, are required in order for **ANALYZE!** to perform calculations on individual or groups of cells.

The relationship between these three categories is as follows. Values are your basic data (numbers). Labels identify this data and make the screen readable. Formulas are used to perform calculations on the data.

HOW ANALYZE! DETERMINES WHAT YOU ARE ENTERING

ENTERING VALUES INTO CELLS

When you enter data into a cell, **ANALYZE!** determines what kind of data it is by the first character typed. **ANALYZE!** determines that you are entering a value or a formula if the first character you type is one of the following:

0 1 2 3 4 5 6 7 8 9 + - . (@ # $

The **ANALYZE!** status indicator, located in the upper right-hand corner of the display, changes from READY to VALUE when you type one of these characters. Though there is considerable difference between a Value and a Formula, **ANALYZE!** treats both categories the same and changes the Status Indicator to VALUE. Since the result of a Formula will be a value stored in a cell, this is entirely normal.

If the first character of your input is anything OTHER than one of those listed above, **ANALYZE!** automatically determines that you are entering a Label. Labels are used to make the worksheet more readable by identifying what the various columns of numbers represent. Later, **ANALYZE!** can use these labels as part of your graphs or to "name" ranges of cells for easy reference.

This style of determining what sort of data is being entered has one minor problem with cell references. Since a cell address begins with an alphabetic letter (columns A-IV), **ANALYZE!** will determine that you're entering a label. Therefore, to enter a cell address as the first item in a cell, precede the cell name with a plus sign (+). For example, if you want to add two cells, instead of using the formula "A1+B1", use "+A1+B1". There are a couple of exceptions which we'll now cover.

The built-in formulas all begin with an "@" symbol, which **ANALYZE!** understands as a special case, such as @SUM(A1..B1). Absolute cell references use the "$" symbol, which **ANALYZE!** knows to be a value — more on absolute cell references in the Advanced Tutorial.

USING THE F9 (RECALCULATION) KEY WHEN ENTERING VALUES

When entering a value, you can express it to **ANALYZE!** as an equation. Instead of entering 8542 into a cell, you could enter the equation used to produce that number, for example, in cell B1 you have the formula "+A1*C1+D3" which multiplies the value of cell A1 by the value of cell C1 and adds the value of D3 to that result. For most worksheets, one or more elements of an equation are likely to be changed, in which case you would benefit by leaving the contents of that cell as a formula.

If the result of a formula will never change, it's a good idea to reduce it to a final value before storing it in the cell. When there's a

formula of any kind in a cell, **ANALYZE!** must recalculate it each time the worksheet is recalculated. Although the delay is minor, they can add up in a large worksheet. When you want to reduce an equation to a single value, type in the entire equation, but DO NOT press the <RETURN> key or one of the direction keys. While your input is still in the data entry area, press the <F9> function key; **ANALYZE!** will calculate the equation and replace it with a single value.

RULES FOR ENTERING NUMERICAL DATA (VALUES)

The following rules apply when you enter numbers into a worksheet:

- A number can start with a digit (0..9), a plus "+" (positive) or minus sign " - " (negative), or a period "." (decimal).
- A number can have only one decimal point.
- You cannot use commas or spaces when entering a number.
- Scientific notation is accepted when you end the number with the letter E, a plus or minus sign, and a one- or two-digit number which serves as the exponent to the base 10 (such as, 12e+32 or 14E-10). **ANALYZE!** displays numbers in scientific notation when the cell width is insufficient to display all significant digits.
- Numbers may be entered as a percentage by using the percent sign "%" symbol. This has the same effect as dividing the input by 100. For example, an entry of "9%" is the same as ".09".

ENTERING LABELS INTO CELLS

If you begin your cell entry with a character not in the value list, the program determines that you are entering a label. When you enter a label, you can enter one of four special label prefix

characters. They are:

Prefix	Action
' (apostrophe)	left justified - flush with the left side of the cell.
" (double quotes)	right justified - flush with the right side of the cell.
^ (caret)	centered - will appear in the middle of the cell.
\ (backslash)	repeating label - repeats whatever character appears after the "\" for the entire width of the cell.

The default label prefix is the apostrophe ('), unless changed with the **ANALYZE!** command menus. If you do not enter a label prefix, your entries will be left justified. The backslash prefix causes the label to repeat until it has filled the entire cell. This prefix is often used to create underlines or dividers of some kind within the worksheet. For example, if you enter the label \- in a cell, that cell is completely filled with hyphen characters. The advantage of using this prefix is that if you change a cell's width, the repeating label adjusts to keep the cell filled.

If you have a label that starts with a number, begin the label with one of the label prefixes listed above before entering the label. The label 1ST would have to be entered as "1ST (including the quote), which would right justify the label. The principle is the same for any other positioning; '1ST and ^1ST will work just as well.

The label prefix is stored as part of the cell's contents, and can be displayed or edited later by positioning the cell pointer to that location. **ANALYZE!** uses the label prefix to align the label each time the cell is re-displayed. This character is NOT displayed in the worksheet, all you will see is the label properly aligned.

What happens when a label is longer than the width of the cell it is typed into? If the cell to the right of the one containing the long label is empty, the long label will "borrow" space. As soon as you enter data into that neighboring cell, or if it already contains data, the long label will be chopped off at the cell's normal width. You may then increase the column width, if you want to display the entire label (more on column widths in the Advanced Tutorial).

VALUE MODE VERSUS LABEL MODE

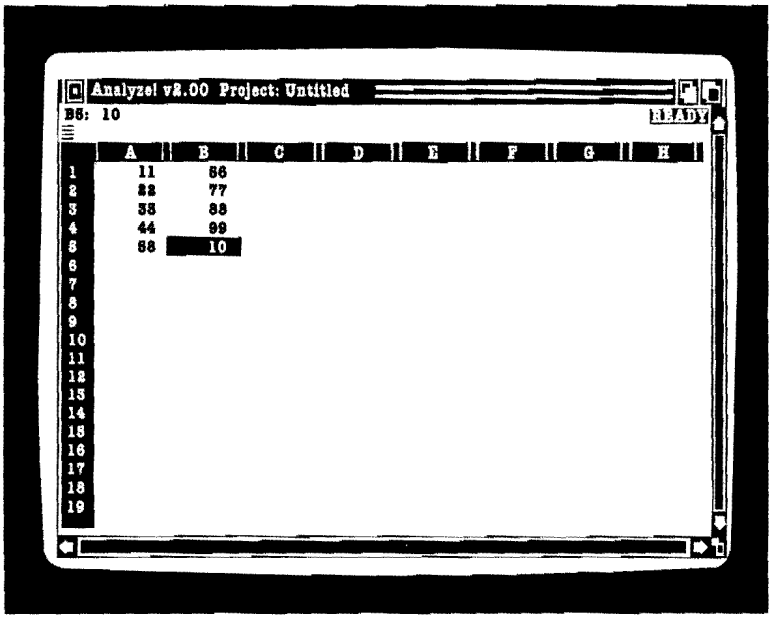
Now that we've discussed both entering values and labels, let's look at the reasons why **ANALYZE!** makes a distinction between the two. **ANALYZE!** has to make the distinction between them before it can store them in a cell, since one is a number to calculate and the other is only a series of characters to display.

When you're entering numbers or formulas, **ANALYZE!** lets you use the direction keys to "point out" a range of cells to be used in that calculation. When entering labels, the direction keys are used for editing within that label. We'll get into detail on the point mode when we cover entering formulas.

ENTERING FORMULAS INTO CELLS

What makes up a "formula"? Formulas perform calculations on numbers entered as part of the formula, calculations on the contents of other cells in the worksheets, or a combination of both. Look again at our practice spreadsheet.

(See photo next page)



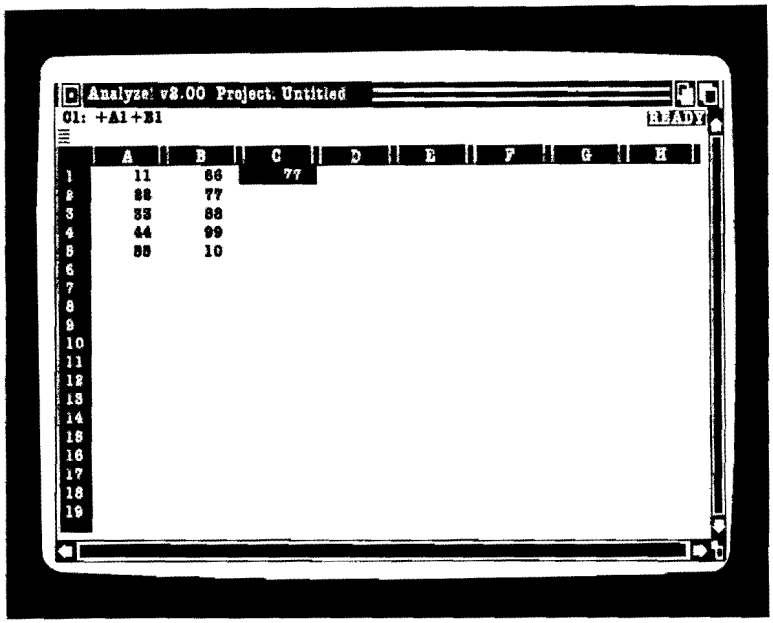
ANALYZE! allows you to perform calculations on a number in one cell with a number in another cell by using a formula. To add the figure in cell A1 to the figure in cell B1 and have the results appear in C1, move the cell pointer over cell C1 and type:

+A1+B1

then press the <RETURN> key. **ANALYZE!** adds the two figures and stores the result in cell C1.

The leading plus sign (+) informs **ANALYZE!** that you are entering a value and not a label. We reviewed this in the "entering values" section.

(See photo next page)



You could have also entered the formula "11+66" into cell C1, and come up with the same results, but that would be duplicating work. After all, you've typed those numbers in once already, why do it again? Instead of telling **ANALYZE!** which numbers to add up, tell it where to find the numbers to add. There's an even more important reason for using the cell references instead of the numbers.

Any time you make changes to cells referenced in a formula, the cell containing the formula is automatically updated when the worksheet is recalculated. Refer to the sample spreadsheet above. If we changed the number in cell B1 to 77, then the number in cell C1 would change to 88. This could have easily been done by hand, but the point is, we didn't HAVE to!

MATHEMATICAL OPERATORS

You can instruct **ANALYZE!** to perform simple computations on your data using the following mathematical operators:

^ Exponential calculation
* Multiplication
/ Division
+ Addition
- Subtraction

They are listed in order of precedence (which calculation would be performed first). To multiply the contents of cell A1 by 1.05 (which increases the value by 5 percent) and store the results in cell A2, you could move the cell pointer to cell A2 and type in the formula:

+A1*1.05

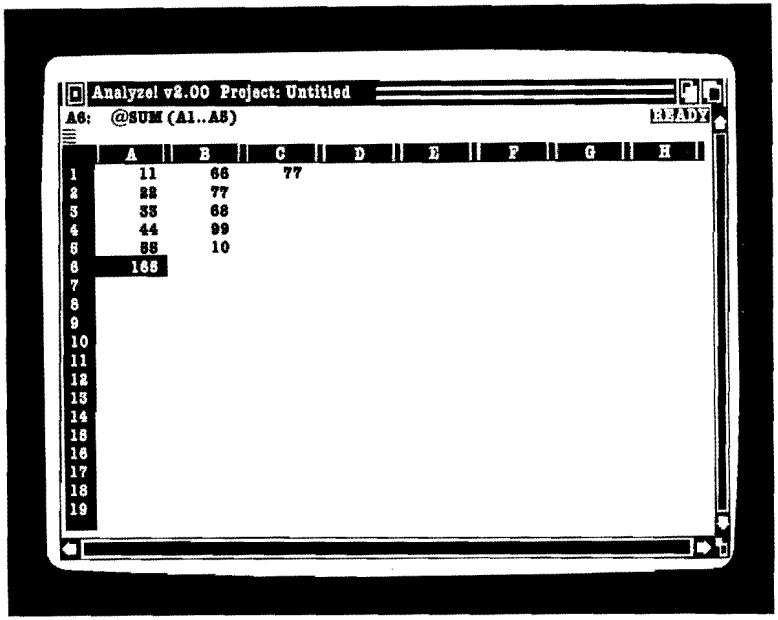
More complicated tasks can be performed with built-in functions known as @functions (pronounced "at functions"). Let's take one of the most commonly used functions as an example, @SUM. This function adds a range of cells. To demonstrate it, we'll make use of the practice sheet containing the two-digit numbers you entered earlier. Place the cell pointer at cell A6 and enter the formula:

@SUM(A1..A5)

and press the <RETURN> key.

The total of the 5 figures appears in cell A6. The complete list of @functions, with examples, are described in Chapter 6. If you've been following along, your worksheet should look similar to this:

(See photo next page)



ENTERING CELL REFERENCES IN FORMULAS — TYPING VERSUS POINTING

In both of the formulas entered, we typed in the cell references. **ANALYZE!** allows you to "point" to the cells on the screen and let **ANALYZE!** enter the cell references for you.

This is useful when entering a cell "range" (cell ranges are discussed in detail in the Advanced Tutorial, Chapter 3 of this manual). Even when pointing out single cells, it is often easier to "point" at the cell than try to determine the cell address visually and type in the address with the <F5> GOTO function key; with the mouse, **ANALYZE!** makes pointing to cells a snap.

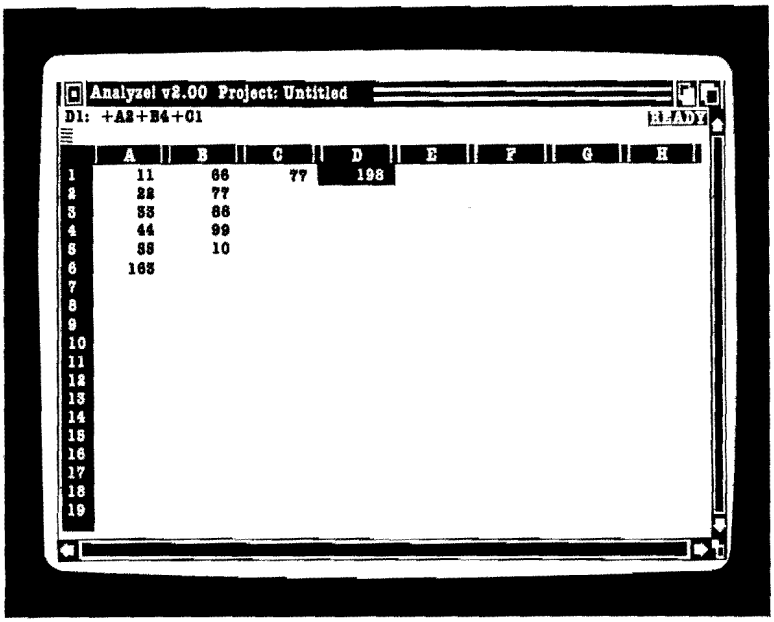
You want to add the contents of cells A2, B4, and C1 and store this result in cell D1. The first step is to position the cell pointer to the location where you want the formula stored, in this case cell D1.

Next, enter a "+" symbol to let **ANALYZE!** know that you're entering a value or formula. Instead of typing the cell coordinates, press the left arrow key. The cell pointer should move to cell C1, the Status Indicator should change to display POINT and the data entry area should now show "+C1". Continue to use the direction keys until the cell pointer is located at cell A2. Notice that the cell address in the upper left hand corner of the window changes each time you move the cell pointer.

When the cell pointer is over cell A2, type another "+" symbol. The cell pointer should have returned to cell D1, the Status Indicator should read VALUE again and the data entry area should show "+A2+". That is how you point out cell address using the arrow keys. Wait, there's an even faster way.

Move the mouse pointer until it points to cell B4. Press the left button once. The cell reference B4 should appear in the data entry area (e.g. +A2+B4). If you should happen to get the wrong cell coordinate, press the BACKSPACE key to erase the "B4", and try again. Type another "+" symbol and repeat the sequence to select cell C1. The data entry area should now read "+A2+B4+C1". Press the <RETURN> key. Your spreadsheet should look like this:

(See photo next page)



The POINT mode can be used to enter an entire range of cells and will be discussed in the Advanced Tutorial (next chapter). How does **ANALYZE!** know to enter the POINT mode, as opposed to using the direction key as a signal to enter the data and move the cell pointer? It depends on the last character entered. If it's a character like "+", " - ", "(", or "=", **ANALYZE!** enters the POINT mode when you press a direction key. When **ANALYZE!** sees that a cell reference will appear next in the formula, it will enter the POINT mode when you press a direction key. The mouse, of course, is a different case. Whenever you're entering a formula, point at a cell, press the left mouse button and that cell coordinate will be entered into the formula.

LOGICAL OPERATORS

ANALYZE! permits logical or conditional statements that test for relationships between values and return either a TRUE or FALSE result. This result can be useful when combined with some of the @functions.

You could store the formula 56=B5 in cell A1. Then, whenever cell B5 contained the value 56, cell A1 would contain a non-zero value (-1 = TRUE). At all other times, cell A1 would contain a zero (0 = FALSE) value.

If a statement is TRUE, its value is non-zero (-1) or @TRUE. FALSE statements have a zero (0) value or @FALSE.

ANALYZE! recognizes the following mathematical operators:

=	equal
<	less than
<=	less than or equal
<>	not equal
>	greater than
>=	greater than or equal

Compound Conditionals (lower precedence):

#NOT#	logical not
#AND#	logical and
#OR#	logical or

These conditionals are extremely useful in combination with the @IF function. (See Chapter 6, Built-In functions.)

WHAT TO DO IF YOU MAKE A MISTAKE (THE EDIT MODE)

Everyone makes mistakes. In a spreadsheet, mistakes are costly and must be corrected at the first opportunity. The idea of having to re-type a large label or a complicated formula, because it was entered improperly, is not a pleasant one. To help minimize this, **ANALYZE!** has a powerful "edit mode" that can be used when an error occurs.

If you make a syntax error (by entering an improper @function or illegal use of a mathematical operator), **ANALYZE!** will sound a tone and place the cursor at the point in the formula where it detected an error. Otherwise, an "Error!" message will appear. For example, the value "5/0" would just cause an "Error!", without a warning tone, because it involves division by zero. Enter the following **incorrect** formula as an example:

@SUMA1

a tone will sound and place the cursor on the "A", since the @SUM function is looking for an open parenthese. Until the error is corrected, any attempt to move to another cell will cause a warning tone and the incorrect entry will continue to remain displayed in the data entry area.

You will remain in the edit mode until the entry is changed to one recognized by **ANALYZE!** as being correct. Pressing the <RETURN> key when the entry has been corrected will cause the label, value or formula to be stored where the cell pointer is located.

The edit mode is also used to change information in existing cells (although you can also enter the edit mode while you're entering data — more on this later). To enter the edit mode, move the cell pointer until it highlights the proper cell and press the <F2> function key. The current contents of the cell will display in the data entry area with a cursor positioned at the end of the value, formula or label. Now, you are free to make changes. Here are some examples:

- You enter a long label and notice that there is a misspelling in the third character position. Press the <F2> function key to make the change without retyping the whole label.

- Use the Edit mode to change a cell or range reference in a complicated formula.

PRACTICE USING THE EDIT MODE

Put the cell pointer over position A6. Type in the formula **+A1**6**. This will cause a warning tone with the cursor shifting position to the second "*" in the formula. Press the <DEL> key to remove the incorrect mathematical operator and press the <RETURN> key to have **ANALYZE!** accept the formula.

Place the cell pointer over cell A6 and press the <F2> function key. When you enter the Edit mode, the cell contents are placed in the data entry area (the area below the cell coordinates). The cell pointer is positioned to the end of the text and the status indicator changes to EDIT.

When **ANALYZE!** is in the Edit mode, the arrow keys operate differently than in the Ready mode, since they're now moving the edit cursor within the data entry area instead of the cell pointer within the worksheet. They are defined as follows:

Key	**Movement**
Left arrow	Moves the cursor one character to the left.
Right arrow	Moves the cursor one character to the right.
<SHIFT>-left arrow	Moves the cursor to start of line.
<SHIFT>-right arrow	Moves the cursor to end of line.

The <BACKSPACE> key moves the cursor one position to the left and deletes the character in that position. The <DEL> key deletes the character under the cursor. The <ESC> key moves the cursor to the beginning of the line and erases everything in the entry area. There is no need for an insert key function, because **ANALYZE!** is ALWAYS in the insert mode when editing cell contents; data at the cursor is moved to the right.

Use the arrow keys to move the cursor left and right. The cursor highlights each character when it is located over it. Edit the formula to read @SUM(A1..A5) and press the <RETURN> key to leave the Edit mode. Cell A6 in the worksheet will reflect the total of all the numbers in cells A1 through A5. If you've been following along, the total will be 165.

Any time you complete your editing, there are several choices available:

1. Press the <RETURN> key and the system restores the edited information to the cell and leaves the cell pointer at that location.

2. Press one of the cell pointer direction keys, like the up and down arrows, or the <SHIFT>-up and <SHIFT>-down arrows. The system enters the information into the cell and the cell pointer moves to the new location.

3. If you enter the Edit mode while entering data in either the Value or Label mode, return to these modes by pressing the <F2> function key a second time.

That third item brings up the question of using the edit mode when entering a value or label. When **ANALYZE!** is in either the LABEL or VALUE modes, typing any of the direction keys will immediately terminate the input and move the cell pointer. If you see that you've made a mistake in your entry, you can press the <F2> function key and enter the edit mode, correct whatever the error is, and press the <F2> function key a second time to return to whatever mode you were in and finish your input.

USING THE F9 (RECALCULATE) KEY IN THE EDIT MODE

When **ANALYZE!** is in READY mode, pressing the <F9> function key will have it recalculate every formula in the worksheet.

However, when **ANALYZE!** is in the EDIT mode, pressing the <F9> function key will calculate the value of the current cell only. This can be used to reduce formulas that will not change their values, so **ANALYZE!** doesn't have to recalculate them all the time. Take for example, the formula "10*@PI". The value of @PI never changes, but each time the worksheet is recalculated, **ANALYZE!** has to find that value once again. If you put the cell pointer over that cell and press the <F2> function key, you will see the cell contents appear in the data entry area. By pressing the <F9> function key, the formula is replaced its calculated value. You can press the <RETURN> key at that point, and store the value in the worksheet. Until you press <RETURN>, the formula can be recovered by deleting the value of the formula with the <ESC> key and pressing the <F2> function key again.

CHANGING THE WINDOW SIZE

The amount of the worksheet that can be displayed at any one time is determined by your window size. Select the sizing device in the lower right-hand corner of the window with the mouse pointer and hold down the left mouse button. The border of the window will change color. Continue to hold down the left mouse button and move the pointer toward the top left corner of the screen. The line you see becomes the new window border when you release the left mouse button. When you have finished practicing with the sizing device, return the borders to normal.

If you have more than 512K memory installed, you can run more than one copy of **ANALYZE!** at a time. Since **ANALYZE!** windows are all on the Workbench screen, when you shrink the visible window, you'll be able to see any additional windows that exist.

ANALYZE! COMMAND MENUS

You can use the mouse for a variety of tasks, such as positioning the cell pointer and pointing out cells when building formulas. Perhaps

none of the functions performed by the mouse are as important as selecting menu commands.

To see the commands available to you, hold down the right mouse button. The title bar at the top of the window is replaced by the **ANALYZE!** command menu.

The **ANALYZE!** command menu:

Worksheet	Range	Print	Graph	Calculate	Sort

Each name in the command menu is a separate menu. Continue to hold down the right mouse button and move the mouse pointer over the menu names. When the mouse pointer touches a name, a menu will pull-down from the title bar. To select a command on one of these menus, move the mouse pointer down the menu. As you move the mouse pointer through the menu, each command will be highlighted.

Some of the commands will produce a pop-out menu of their own with further options on them. You can highlight the options on this submenu by moving the mouse pointer to the right of the first menu.

When you highlight the command or option that you wish to access, release the right mouse button. The command or option currently highlighted will be processed. If you want to execute more than one command from the **ANALYZE!** menus, highlight a command and press the left mouse button (while continuing to hold the right). Each time you press the left mouse button, you add another command to the list of items which will be processed when you release the right mouse button.

When selecting multiple commands, select the LAST command by highlighting and releasing the right mouse button. This will avoid selecting the last command twice. If you should happen to select a command with the left button and realize that you're done, move the

mouse pointer completely off the menu so that nothing is highlighted and release the right mouse button to exit the menus.

In the same manner, if you display a pull-down menu and decide that you don't want to select anything, be certain to pull the mouse pointer off the menu before releasing the right mouse button. Remember, if nothing is highlighted, nothing is done.

If you select a command that requires additional input, **ANALYZE!** displays a prompt at the top of the window under the title bar, or a requester. When this occurs, enter the requested information and press the <RETURN> key.

ANALYZE! KEYBOARD COMMANDS

ANALYZE! supports ALL menu items through keyboard commands. These same keyboard commands are used with our Macro Language, which will be explained in Chapter 5.

Keyboard commands are simple to use. To access any menu item from the keyboard, instead of the mouse, press the "/" key, which is located directly to the left of your right SHIFT key.

A command line will appear directly below the title bar with the following options:

Worksheet Range Print Graph Calculate Sort

Notice these are the same menu items that appear when using the mouse pointer with the pull-down menus. When the menu items are selected with the menu mode, the pull-down menus will be ghosted (the menu items will appear to be 'faded'). Anytime a menu item is ghosted, it cannot be accessed.

Worksheet will be highlighted. Use the right and left arrow keys to move to each of the menu items. To select a menu item, press the first letter of the menu items' name, or press the <RETURN> key

when the appropriate menu item is highlighted. Notice that no two menu commands can ever be accessed with the same keyboard combination, allowing you to enter the commands from the keyboard without fear of accessing the wrong command.

Move the highlight bar to "Calculate" and press the <RETURN> key, or press the letter "C" from the keyboard. The following sub-menu will appear:

Method Order Iteration Alert

These are the same options available as if you had displayed the Calculation menu with the mouse pointer. Select "Alert" by highlighting the selection and pressing the <RETURN> key, or press the letter "A" from the keyboard. The last options will display:

Enable Disable

Select "Disable". The menu commands will disappear since the item has been selected. With 4 keystrokes, you have negated the need for removing your hands from the keyboard and using the mouse to accomplish the same thing. For those of you with a fear of mice, this powerful feature of **ANALYZE!** will be a welcome one.

Use the mouse pointer at this time to pull down the "Calculate" menu. Move the highlighted bar down to "Alert". A pop-out menu will appear with "Enable" checkmarked. Selections such as this, when made through the keyboard, will be automatically updated on the pull-down menus.

If you select the wrong menu item, press the <ESC> key to take you one menu level backwards. Pressing the <ESC> key several times will drop you out of the menu mode altogether.

SAVING YOUR WORKSHEETS INTO FILES

Just as the most important function of the mouse may be selecting

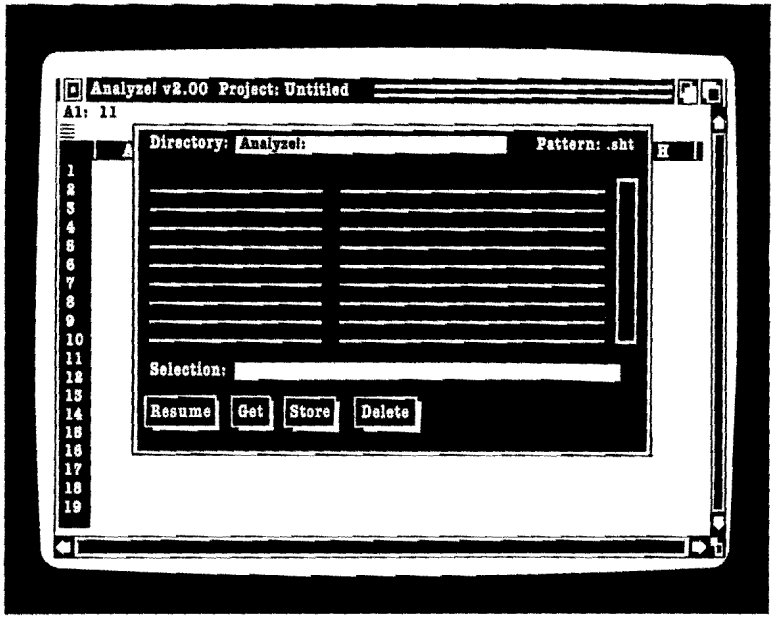
commands from the menus, perhaps the most important menu command is the Archive command on the Worksheet menu, which saves and loads your worksheets to and from diskette.

This is really the last of the "basics" you need to master when using **ANALYZE!**. It stores your worksheets permanently, so you can load and use them later. To accomplish this, we will teach you to use the Archive Requester.

THE ARCHIVE REQUESTER

To display the Archive Requester, select the Archive command from the Worksheet menu, located on the title bar. **ANALYZE!** accesses the disk drive for a moment and displays the Archive Requester. The Worksheet Archive Requester will display all files with the pattern ".sht" at the end of the filename. **ANALYZE!** uses the ".sht" pattern to identify worksheet files. The following picture shows an Archive Requester.

(See photo next page)



When you select Worksheet Archive, Graph Archive Definitions or Graph Archive Picture, this requester appears. The only difference between each of the above requesters is each will display only those files pertaining to that menu item. Only Worksheets will appear in the Worksheets Archive and Graphs Definitions from the Graph Archive Definitions.

ANALYZE! automatically adds a ".xxx" extension to the filename. "xxx" is a three letter filename extension **ANALYZE!** add to the filename to segregate the listings, depending on the file type — ".sht" for Worksheet, ".grf" for Graph Definitions and ".pic" for Graph Picture. A sample worksheet name would display in the requester as "SALES.sht".

DO NOT use periods (.) as part of a filename when storing files. **ANALYZE!** will automatically add the proper file extension to the filename for you. If you enter "RAND" under Worksheet Archive, the filename will appear within the requester as "RAND.sht".

ANALYZE! will display the filenames in the order that they're found on the disk. When all the files are found, the directory is automatically sorted in alphabetical order.

While the directory is displaying in the requester, notice the scroll bar on the right side of the requester move in proportion to its position in the listing. While the filenames are being read, you can use the scroll bar to move up and down through the directory. "Paging" through the directory with the scroll bar is accomplished by pressing the left mouse button while the mouse pointer is in the empty area above or below the scroll bar. If you are using KickStart 1.2, as you move the scroll bar, the Archive listing adjusts its display accordingly.

Near the top of the requester, the word "Directory:", with an input area to the right will be displayed. This contains the volume name of your **ANALYZE!** disk or the volume name or drive name of the currently selected disk drive.

Some examples: If you select the "Directory:" input area with the left mouse button, enter "DF1:" and press the <RETURN> key, **ANALYZE!** will automatically start reading the filenames of any disk that is in your external drive, aborting the filename listing currently in progress. If you enter "SPREADSHEETS:", **ANALYZE!** searches any drive that contains the diskette with the volume name of "SPREADSHEETS". Make sure you enter an ending colon (:), for without it, **ANALYZE!** will try to log into a drawer (sub-directory) that does not exist. Any attempt to Store a worksheet will result in an "Error storing file" message.

If you choose to use drawers (sub-directories), they must first be created with the CLI MAKEDIR command or through Workbench by copying a drawer, emptying its contents and renaming the drawer.

To log into a sub-directory with the Archive Requester, enter the drive or volume name of the disk, the colon and the sub-directory name. For example:

DF1:JAN or **SPREADSHEETS:JAN**

The first "Directory:" entry would access whatever diskette was in the external drive and look in the drawer (sub-directory) called "JAN". The second entry would prompt you to insert a diskette with the volume name of "SPREADSHEETS" in any drive, where it would access the sub-directory called "JAN". **If the sub-directory does not exist, ANALYZE! WILL NOT create it. Any attempts to store a file will result in an "Error storing file" message.**

Sub-directories can be created up to five levels deep. When entering a drive/path name that requires **ANALYZE!** to access a sub-directory with an extensive path designation, separate the sub-directory names with forward slashes. For instance:

SPREADSHEETS:1986/JAN

This "Directory:" entry would cause **ANALYZE!** to look for the diskette with the volume name of "SPREADSHEETS", access the sub-directory name called "1986" and access "1986"'s sub-directory called "JAN". Make sure that the sub-directory exists before having **ANALYZE!** log into it.

If you do not understand this fully, it would be in your best interest to purchase an AmigaDOS user's manual from your local bookstore. While our Technical Support advisors are always happy to answer your **ANALYZE!** questions, AmigaDOS questions should always be referred to your local dealer.

SINGLE DRIVE OWNERS

Volume names are a must for single-drive owners. Two drive users can specify the drive name if they choose, but volume names are far more reliable if you are doing any type of multi-tasking that involves switching diskettes.

When you format (or Initialize) a diskette, you assign it a name. This is called the diskette's "volume name". You can refer to that diskette later by this name. In addition to the volume name, each drive has a name. You can refer to a diskette by the drive in which it is located or by its volume name. A volume name will default to the name of "Empty" (without the quotes) when initializing it through Workbench. Use Workbench's RENAME function to change the volume name to something more appropriate.

With the Archive requesters, you do not have to wait for the entire directory to appear before selecting another drive. While filenames are displaying, enter a new drive/path and press the <RETURN> key. **ANALYZE!** will abort listing the current disk's filenames and start listing the new one.

The last input area is the one called "Selection:", which appears right below the filename listing. "Selection:" contains the current file you are working with or have chosen by pressing the left mouse button while it was on that particular item.

If you enter a specific filename while the directory is displaying and select the Get gadget, **ANALYZE!** searches immediately for that particular filename and loads it. If the filename is incorrect, an "Error getting file" message will appear.

To store a file to disk, enter the filename in the "Selection:" prompt and press the left mouse button with the mouse pointer on the Store gadget. A requester will appear, prompting you for an optional comment. Enter any comments and press the <RETURN> key or select the "OK" gadget.

Everytime a worksheet is stored, a project icon is created which can be used to load **ANALYZE!** with that particular sheet. To use a project icon, press the left mouse button twice in succession while the mouse pointer is located over the project icon you wish to load. **ANALYZE!** will automatically be loaded with the worksheet that has the same filename as the project icon.

Attempting to Store a current or existing worksheet will cause a "File exists, replace?" requester to appear. Answering "OK" will prompt you for an optional comment, unless a comment had been entered previously. Should a comment exist, you will not be prompted to enter another one. To change a comment, Get the worksheet, delete it from the Archive Requester and Store it again. If the filename is too long, a "Selected filename too long" message will appear. Maximum filenames are 20 characters long, with four of them reserved for the ".sht" filename extension.

At this time, the Worksheet Archive will contain a few sample worksheets. For now, select the Resume gadget to return to the main window of **ANALYZE!**.

ARCHIVE REQUESTER GADGETS

The following table shows a complete list of gadgets used with **ANALYZE!**:

Command	Function
Resume	Returns to the worksheet.
Get	Loads the selected file and returns to the worksheet.
Store	Prompts for an optional comment and stores the current worksheet to disk.
Delete	Erases the selected file from the diskette after displaying a requester confirming the selection.

QUITTING ANALYZE!

Make sure you save your work. If the worksheet name appears in the title bar, press the <F8> function key to automatically store the worksheet to disk. Then select the Quit command on the Work-

sheet menu and when you are prompted to verify whether you want to quit, respond with "OK".

Practice loading back the worksheet you saved. You can select the RAND.sht project icon from the Workbench window by pressing the left mouse button twice when the mouse pointer is over the icon or restart **ANALYZE!** and select the Archive command on the Worksheet menu. Find the file RAND.sht. Highlight that file by pointing at the filename and pressing the left mouse button. Now select the Get gadget. **ANALYZE!** should load the file from diskette. Is the same data back on the screen? Good! You have successfully created, saved, and re-loaded a worksheet. These are the ABCs of working with **ANALYZE!**. You should now be ready to start familiarizing yourself with the Advanced Tutorial.

CHAPTER 3
THE ANALYZE! ADVANCED TUTORIAL

OVERVIEW OF THE ADVANCED TUTORIAL

The Advanced Tutorial acts as both a tutorial and a reference guide. In most cases, the first few paragraphs briefly describe the topic. The tutorial portion elaborates on what you are familiar with from reviewing the last chapter.

In the last chapter, the Beginner's Tutorial, you became acquainted with the basic elements of using **ANALYZE!**. Moving the cell pointer, entering data into cells, and loading/saving worksheets were all subjects covered. In this chapter, we'll get into some of the "power" areas of **ANALYZE!**. Items such as using ranges, worksheet global settings, cell formatting and sorting will be covered.

You shouldn't begin working with this chapter until you're comfortable with all the items in Chapter 2, as it will make the material covered here easier to understand. It is likely that you'll have a hard time understanding what a range of cells is, if you don't already know what an individual cell is and what it's used for.

COPYING WORKSHEETS

Good data management techniques call for frequent backups of your important data. Most computer equipment is reliable and it's rare that you lose data. This impression of reliability should always be weighed against the amount of time and trouble you'll be forced to go through if you lose your work. Some of the more common instances of trouble are not caused by equipment failure at all; if you've got a worksheet for your company on only one diskette, what

would happen if you lost it?

It is good practice to always have more than one copy of any important worksheets. This brings us to the subject of how exactly you go about making backup copies of your worksheet.

The first and obviously most simple method is to just backup the entire diskette with DiskCopy. Sometimes this is not the preferred method as it is time consuming to backup an entire diskette that contains a single file, especially a small one. If you ARE working on a whole series of files relating to a particular job, it is more convenient to keep them all on the same diskette and backup that diskette after each session.

There are three ways to make a backup copy of an individual file:

1. Copy the file using its icon from Workbench.

2. Copy the file using its filename from CLI.

3. Copy the file using **ANALYZE!**'s Archive Requester.

In the first case, copying the file from Workbench is a simple procedure. To copy a file from Workbench, select the file's icon from one diskette's window by pressing the left mouse button while the mouse pointer is over the icon and drag it to another diskette's window. Your Amiga User's Manual contains a very complete description of copying files from Workbench, if you have any questions. To locate a particular worksheet, look through the worksheet icons until you find the one with the proper name below it. That is your file's icon.

If your Workbench window contains many project icons, not all may be displayed within the window. It may be necessary to scroll through the Workbench window or increase the window size so all the icons can be viewed.

The second case, copying the worksheet file using CLI, can take two forms, depending on how many disk drives you have. If you have only one disk drive, you'll need to copy the file using volume names (a "volume name", as mentioned in the last chapter, is the name you give your diskette when you format it). Using volume names allows the Amiga to prompt for the proper diskette at the proper time, so you can swap them. Let's assume that the diskette in drive DF0: is named "**ANALYZE!**" and it contains a file called "PROFIT.SHT" which you need to backup. The first step is to prepare a backup diskette, if you have not done so already, making sure that the name is different from "**ANALYZE!**". If you are not in CLI, select the "System" drawer from the Workbench window and press the left mouse button twice when the mouse pointer is located on the icon named CLI. A CLI window will appear over the Workbench window. The command to copy the file then becomes:

Copy ANALYZE!:Profit.Sht To BACKUP:Profit.Sht

Substitute another volume name if you do not have one named "BACKUP". The Amiga will prompt you for each diskette with a System Requester, as needed.

If you have two disk drives, you have an additional option, since it is possible for you to copy the file without switching diskettes during the procedure. For example, the diskette in DF0: is your **ANALYZE!** program diskette and it contains a file called PROFIT.SHT that you are backing up. In this case, the command becomes:

Copy ANALYZE!:Profit.Sht To BACKUP:Profit.Sht

or

Copy DF0:Profit.Sht To DF1:Profit.Sht

The first example works with one or two disk drives while the second method is used when you do not know the diskette volume

names (although you can discover those with the Info command from CLI). "DFx" is the drive name, where "x" is the drive number. When you use it in a filename like we did above, it is essentially saying "I want to use THIS drive no matter what diskette happens to be in it". Using the volume name is essentially saying "I want to use THIS diskette, no matter what drive it happens to be located in".

Single drive users MUST use the volume names, since they'll have to swap diskettes during the copy. Multiple drive users have the option of using the drive names since they could copy the file without swapping diskettes during the copy. Multiple driver users CAN use the volume names without trouble. We only brought up the case of the drive names to show you an option multiple drive users have if they forget what they named the diskettes when they formatted them.

In the third case, copying the worksheet through the **ANALYZE!** Archive Requester, the procedure breaks down into the following steps:

1. Select Archive on the Worksheet menu.

2. When the Archive Requester appears, select the file you want to copy with the mouse by pressing the left mouse button when the mouse pointer is located on the proper filename.

3. Select Get with the mouse pointer to load the worksheet.

4. Select Archive on the Worksheet menu.

5. When the Archive Requester appears, if you need to insert the backup diskette, please do so. Then select the "Directory:" input area and enter the drive name or diskette volume name and press the <RETURN> key. **ANALYZE!** will display the filenames for the new drive/directory.

6. Select the "Selection:" input area, enter the worksheet name and select the Store gadget with the mouse pointer.

7. **ANALYZE!** then prompts you to enter Optional Comments. Enter a comment and press the <RETURN> key or select the "OK" gadget with the left mouse button. Select the Resume gadget to continue when the file is stored.

Using one of the above procedures, copy RAND.SHT and call the copy SALES.SHT. Select the Archive command on the Worksheet menu and verify that the Archive Requester now includes RAND.SHT and SALES.SHT. Select SALES.SHT with the mouse and select Get to load SALES.SHT.

WORKING WITH CELLS

Your **ANALYZE!** spreadsheet is made up of cells, as you should be familiar with by now. In the last chapter, we spent a lot of time learning how to enter data into these cells and moving the cell pointer around the spreadsheet. Using **ANALYZE!**'s cells does not stop there.

In this chapter, we'll cover cell "ranges" and learn how they can make your life MUCH easier as you work with **ANALYZE!**. We're also going to discuss cell formatting. You'll learn how to make your worksheets visually appealing, as well as informative.

The most important difference between Chapters 2 and 3 is in Chapter 2, you learned to think of each cell on an individual basis by entering values or labels into a single cell. In Chapter 3, we're going to expand your focus to thinking about cells in groups (ranges). Although a worksheet is made up of cells, in practical use you will come to see that cells make up RANGES and ranges make up worksheets.

WHAT IS A "CELL RANGE"?

A cell "range" is any collection of cells in your worksheet that belong together. Normally, they would be related, but that is not a requirement. They MUST have no blank cells in them. Any empty cells will have a value of 0, while blank cells contain nothing at all.

A range is expressed in "range coordinates". These coordinates specify the upper left hand corner and the lower right hand corner of the range. When entered, this will be expressed as one cell address, followed by two periods, and the other cell address. The range that contains the cells A1, A2, A3, A4, and A5 would be written out "A1..A5".

For example:

	A	B	C	D	E	F	G
1							
2	*	*	*	*	*		
3	*	*	*	*	*		
4	*	*	*	*	*		
5	*	*	*	*	*		
6	*	*	*	*	*		
7							
8							
9							
10							

We've placed an asterisk in every cell location would be described by the range A2..E6. Another example:

(See illustration next page)

	A	B	C	D	E	F	G
1		*					
2		*					
3		*					
4		*					
5		*					
6							
7							
8							
9							
10							

This time, the asterisks appear in the range B1..B5. Another example:

	A	B	C	D	E	F	G
1							
2							
3							
4	*	*	*	*	*	*	*
5							
6							
7							
8							
9							
10							

In this final example, the asterisks illustrate the range A4..G4.

WHAT IS A CELL RANGE USED FOR?

Cell ranges are used for a variety of things in **ANALYZE!**, but we thought it a good idea to detail a few of the more common ones here to help you understand range operations. Consider the following list:

(1) Duplicating or moving large amounts of information around the worksheet, rapidly.

(2) Applying a similar cell format to a large group of cells.

(3) As an argument for one of the built-in @functions.

In the following pages, we'll look carefully at all the areas of range operations which fall into these three categories.

COPYING CELLS AND GROUPS OF CELLS

To do this, you will need to use the Copy command on the Range menu. This command will make a duplicate copy of a cell range in a new location. The cells in the original location will remain unchanged.

Select the Copy command on the Range menu, or press "/RC" from the keyboard. We discussed how to select menu items and keyboard commands in Chapter 2. If you are not sure how to do this, please go back and review that Chapter again. When you select the command, you'll be prompted to enter the source and destination ranges. How you respond depends on whether you want to type in the range coordinates manually or use the point mode to indicate the ranges. Let's look at each.

ENTERING CELL RANGES MANUALLY

This is the fastest method if you already know the starting and ending points of the range you want to define.

(1) Select Copy on the Range menu. The following prompt appears:

Enter range to copy FROM: (Present address)

(2) Enter the coordinates that define the range which contains the information you want to copy and press the <RETURN> key.

The current address will disappear as you begin typing. When you press <RETURN>, the following prompt appears:

Enter range to copy TO: (Present address)

(3) Enter the upper left hand cell address in the destination cell range and press the <RETURN> key. The information in the originating cell range is duplicated in the destination cell range.

Notice item #3 refers to entering only the upper left hand coordinate of the destination cell range. **ANALYZE!** will attempt to copy the specified cells in identical format to the source range. If you were copying a range of ten cells, located one above the other in a column, the destination range would also be assumed to be organized the same way. A1..A6 could copy into D1..D6, but not B1..G1. Should you specify a destination RANGE, rather than a single cell, **ANALYZE!** will attempt to satisfy your request, which could produce some rather unusual results.

Earlier, we asked you to load the worksheet SALES.SHT. As we discuss items in this chapter, we'll be giving you examples using that worksheet. You may wish to load that worksheet now.

For SALES.SHT enter A1..A6 and press the <RETURN> key after the "Enter range to copy FROM:" prompt. Type C1 and press the <RETURN> key after the "Enter range to copy TO:" prompt. The information that was in cells A1..A6 is duplicated in cells C1..C6.

ENTERING CELL RANGES WITH THE POINT METHOD

When using the point method, you must first designate an anchor cell. The anchor cell is the first cell of the range you want to copy. If you specified a range of A1..A6, then cell A1 is considered to be the anchor cell.

1. Move the cell pointer to the first cell of the range to copy and select Copy on the Range menu. That cell is now the anchor cell.

2. Select the cell range. You can do this in one of two ways:

a. With the mouse: position the cell pointer at the anchor cell, press and hold down the left mouse button. Move the mouse pointer until the cell range is highlighted, then release the mouse button. To select a cell range that extends beyond the window display, move the paint roller as far to the direction you wish to copy as possible, the window will automatically scroll to keep highlighting. To abort a highlight, move the paint roller to any of the four corners of the screen. You will be returned to the anchor cell location. Be careful when doing this, should part of the highlighted range be located near one of the corners of the window, it is quite easy to abort the cell pointer highlighting.

b. With the arrow keys: position the cell pointer to the anchor cell. Press the appropriate arrow keys until the cell range is highlighted.

Experiment with these methods to see how you can expand the cell range. Notice that the cell range display at the top of the window changes as you move the cell pointer.

3. When you have highlighted the cell range, press the <RETURN> key.

4. Move the cell pointer to the first cell of the destination range and press the left mouse button.

Use this method to copy cell range C1..C6 to cell range D1..D6.

Changing the Anchored Cell

To change the anchored cell with the keyboard:

1. Press the arrow keys to move the cell pointer to the cell you want anchored.

2. When the address of the cell you want to anchor is on the right side of the range display, press the period (.) key. This anchors the cell you selected. The cell address that was on the right side of the range appears on the left side of the range display.

To change the anchored cell with the mouse:

1. Point to the cell you want to anchor and press and hold the left mouse button.

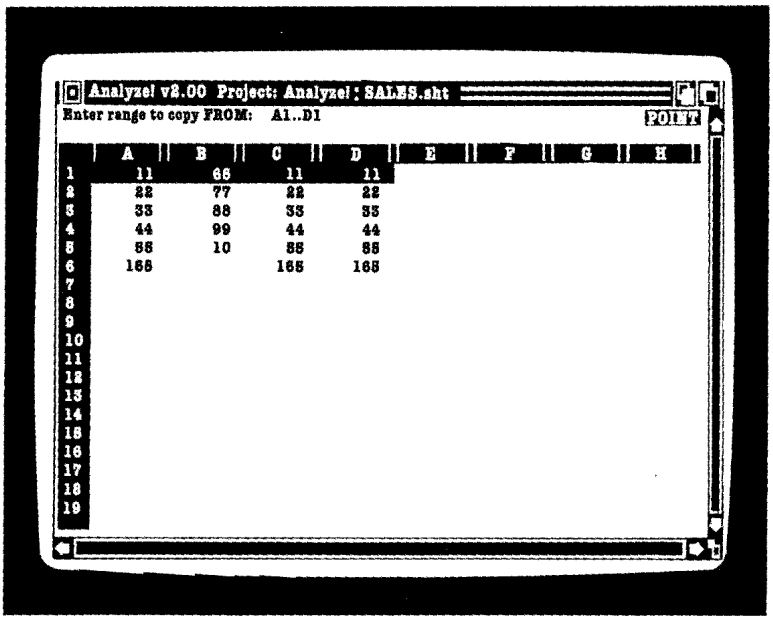
2. Move the mouse pointer, while holding down the left mouse button, to expand the highlighted area to include the range you want to input. Release the left mouse button to enter the range.

To change the anchored cell on SALES.SHT, place the cell pointer on A1, then:

1. Select Copy on the Range menu. Cell A1 is the currently anchored cell. Assume that you want to change the anchored cell from A1 to D1.

2. Move the highlighted area until D1 appears as the coordinate on the right side of the range display. The screen looks like this:

(See photo next page)



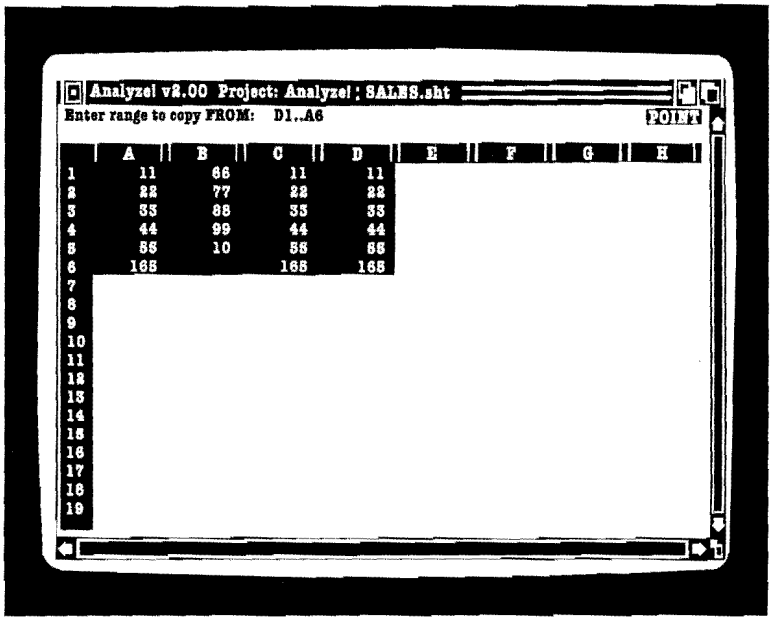
3. Press the period key (.). The range display now looks like this:

Enter range to copy FROM: D1..A1

By pressing the period key, you changed the anchored cell to D1. The screen reflects this by moving D1 to the left side of the range.

Copy all of the information on your worksheet. Expand the highlighted area to include all of the cells in which you have entered numbers.

(See photo next page)



Press the <RETURN> key. Move the mouse pointer to cell E1 and press the left mouse button.

To the right of the original, the screen displays a duplicate of the cells you highlighted.

Move the cell pointer to E6. Remember the formula you entered to total the numbers in the A column? **ANALYZE!** changed the formula. The formula now totals the duplicate of those numbers with the modified formula @SUM(E2..E5).

ERASING CELLS IN THE WORKSHEET

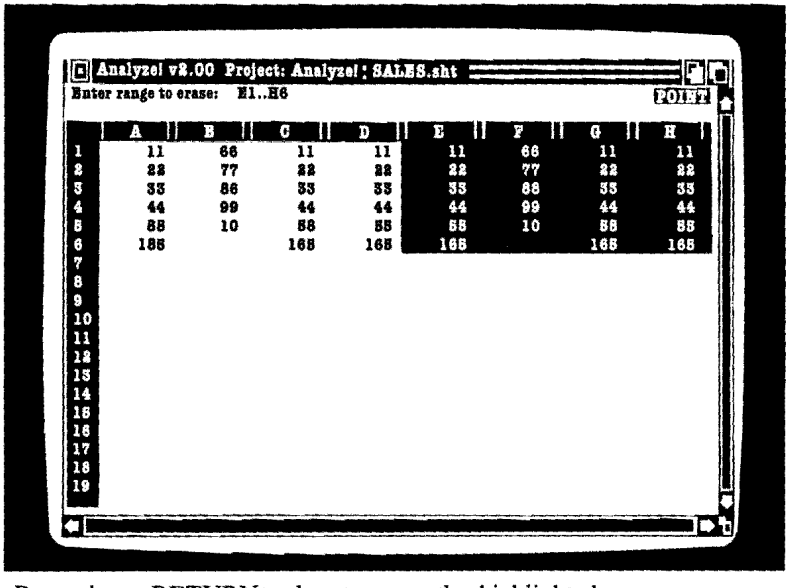
This function enables you to erase cells or a range of cells.

1. Select the Erase command on the Range menu or "/RE" from the keyboard. The screen displays:

Enter range to erase: (Present address)

2. Either enter the range to erase manually or use the point mode to highlight the area you want to erase.

Using the above procedure, erase columns E through H and rows 1 through 6 on SALES.SHT using the point method. The highlighted area should look like this:



	A	B	C	D	E	F	G	H
1	11	66	11	11	11	66	11	11
2	22	77	22	22	22	77	22	22
3	33	88	33	33	33	88	33	33
4	44	99	44	44	44	99	44	44
5	55	10	55	55	55	10	55	55
6	165		165	165	165		165	165
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								

Press the <RETURN> key to erase the highlighted range, or release the left mouse button if using the mouse pointer to highlight the range.

MOVING CELLS AND CELL RANGES

Moving cells is similar to copying cells. When you move cells, the cells at the original location are deleted. The arrow keys and the mouse operate the same way as described in the paragraph on copying cells.

1. Select Move on the Range menu. The screen displays:

Enter range to move FROM: (Present Address)

2. Enter the range you want to move and press the <RETURN> key. The screen displays:

Enter range to move TO: (Present Address)

3. Enter the destination address and press the <RETURN> key.

Use the above steps to move a cell range on SALES.SHT. Enter A1..A6 as the range to move from. Place the mouse pointer at cell E1 and press the left mouse button. The cell range A1..A6 moves to cell range E1..E6.

Position the cell pointer at cell E6. Notice that the formula has changed to total the new cell addresses.

FORMATTING AND REORGANIZING THE WORKSHEET

LABELING ITEMS IN YOUR WORKSHEET

Prepare your worksheet for this next exercise by erasing cells B1..E1.

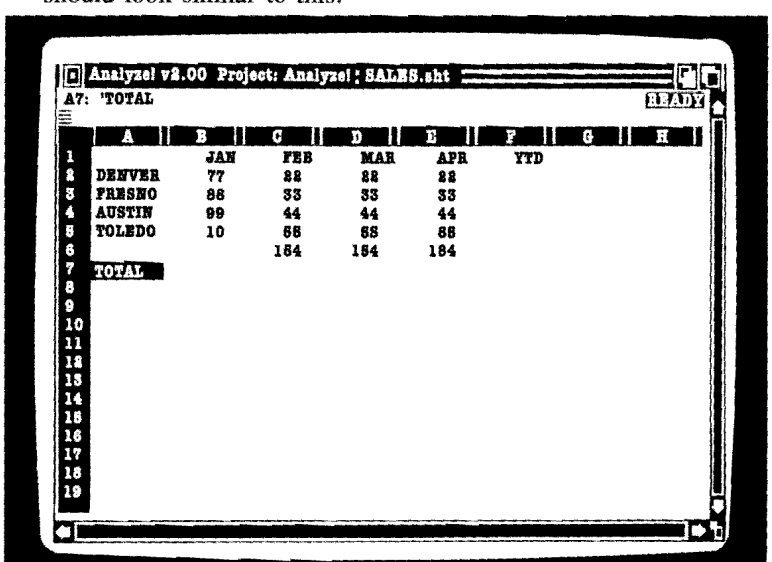
The Worksheet is much more useful if it is properly labeled. For Example, you want to display sales figures for your company (in thousands of dollars) for the months of January, February, March, and April. The figures you entered earlier represent sales figures for your offices in Denver, Fresno, Austin, and Toledo.

1. Place the cell pointer at cell B1 and type JAN, type FEB at cell C1, type MAR at cell D1, and type APR at cell E1. At cell F1, type YTD.

2. Move the cell pointer to A2 and type DENVER. Press the down arrow and type FRESNO. Enter AUSTIN and TOLEDO in the same manner. At cell A7, type TOTAL.

3. Select Label from the Range menu. On the submenu, select Right.

4. **ANALYZE!** prompts you to Enter range of labels: Enter B1..F1. The labels shift to the right side of the cells. Your screen display should look similar to this:



UNDERLINES

Underlining helps make your worksheet easy to read and understand. In the previous chapter you created an underline in a single cell. To create underlining in a range of cells, follow the instructions below:

1. Enter "\-" in the first cell where you want the underline to appear. The backslash symbol informs **ANALYZE!** to fill the entire cell with the character that follows.

2. Select Copy on the Range menu.

3. **ANALYZE!** prompts you to:

Enter range to copy FROM: (Present Address)

Enter the cell where you typed the "\-" (repeating dash)

1. The system now prompts you for the destination range. Enter the range where you want the underline to appear.

To illustrate the use of underlines in SALES.SHT, create an underline at cell B6. Place the cell pointer at B6, then type "\-" and press the <RETURN> key.

With the cell pointer at cell B6:

1. Select Copy on the Range menu. If B6 is not shown, type it in and press the <RETURN> key.

2. Select C6..F6 as the destination range, then press the <RETURN> key. An underline appears in cells B6..F6.

TOTALING YOUR FIGURES

Vertical Totals

Now we'll perform some calculations on the columns. The procedure for doing this is as follows:

1. Enter the formula in a cell after the first of these columns.

2. Copy the formula to the cells beneath the rest of these columns. The formula changes to calculate the cells at its new location.

Calculate the totals of the vertical columns on SALES.SHT. With the cell pointer at cell B7, enter the formula @SUM(B2..B5) and

press the <RETURN> key.

Copy this formula to the other columns, using B7 as the range to copy from and press the <RETURN> key. When **ANALYZE!** prompts you to enter the destination range, enter C7..F7 and press the <RETURN> key. Notice that the totals now extend across the bottom of the worksheet.

Horizontal Totals

Now we'll perform similar calculations for each row. The procedure for this is as follows:

1. Enter the formula in a cell after the first of these rows.

2. Copy the formula to the rest of these rows. The formula changes to total the rows at its new location.

Calculate the horizontal totals on SALES.SHT. Place the cell pointer at cell F2. Enter the formula @SUM(B2..E2) and press the <RETURN> key.

Copy this formula to the range F3..F5. The rows and the columns are now totalled.

You have now created a business model that can be used for sales analysis. Suppose March sales for Austin came to 99 (thousand). Place the cell pointer on cell D4. Enter 99 and press the <RETURN> key. Repeat this procedure as often as you want, to illustrate the effect.

CURRENCY (Dollars and Cents)

To make the figures in your worksheet appear in currency format:

1. Select Format on the Range menu. On the submenu, select Currency. You are then asked to:

Enter number of decimal places (0-14): 2

2. In currency, you normally have 2 decimal places. Select 2 by pressing the <RETURN> key.

3. You are now prompted for:

Enter range to format: (Present Address)

Enter the range you want to appear in currency format and press the <RETURN> key.

To demonstrate the currency format on SALES.SHT, refer to the above instructions to format the range F2..F5. Column F shows dollars and cents for each entry.

The currency format takes up space on the worksheet. If your numbers are too large to fit in the allotted space, the cell will fill with asterisks.

You can increase the cell area to accommodate more numbers. This subject is covered in depth in Chapter 7, under Worksheet Column Command.

At this time it may be a good idea to practice with the currency format. Put cells B7..F7 in the currency format. Refer to the above instruction if you run into any difficulty.

CREATING A BAR GRAPH WITH + AND - SYMBOLS

Occasionally you may wish to illustrate your worksheet figures in a graphic form. To create a bar graph, follow the instructions below:

1. Place the cell pointer one cell to the left of the column where

you want the graph to appear. Type a number between -9 and +9. Negative numbers will appear in another color other than positive numbers. This color will vary depending on how you have your Preferences configured.

2. Move the cell pointer down one cell and enter another number between -9 and +9. Continue to enter numbers in this column.

3. When you are finished entering numbers, copy the numbers to the column directly to the right.

4. Select +/- on the Range Format menu.

5. **ANALYZE!** now prompts you to:

Enter range to format: (Present Address)

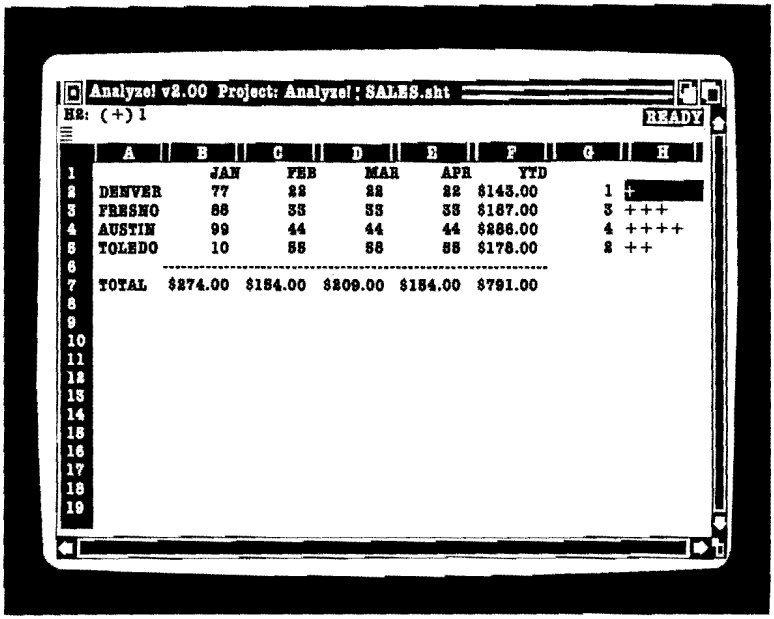
Enter the address of the right column and press the <RETURN> key. Your graph now appears. Positive numbers are represented by a series of plus signs (+), and negative numbers are represented by minus signs (-).

To create graphs that reflect larger numbers, change the column width. Changing column width is discussed in Chapter 7 under Worksheet Column Command.

Using the above steps, create a bar graph on SALES.SHT. Place the cell pointer at cell G2. Type a number between -9 and +9. Repeat this process for cells 3, 4, and 5 in column G. Notice that negative numbers appear in red on the worksheet.

Copy column G2..G5 to column H2..H5. Select the Range Format submenu and select +/-. Select the range H2..H5 as the range to format.

The graph in column H represents the values in column G. Your worksheet should look similar to the one shown below:



Granted, this doesn't look as good as our own graphs, which will be covered in the next chapter, but are useful in some instances.

RESETTING FORMAT COMMANDS

To return the formats to their former appearance, select Range Format Reset from the Range menu or enter "/RFR" from the keyboard. The system prompts you to:

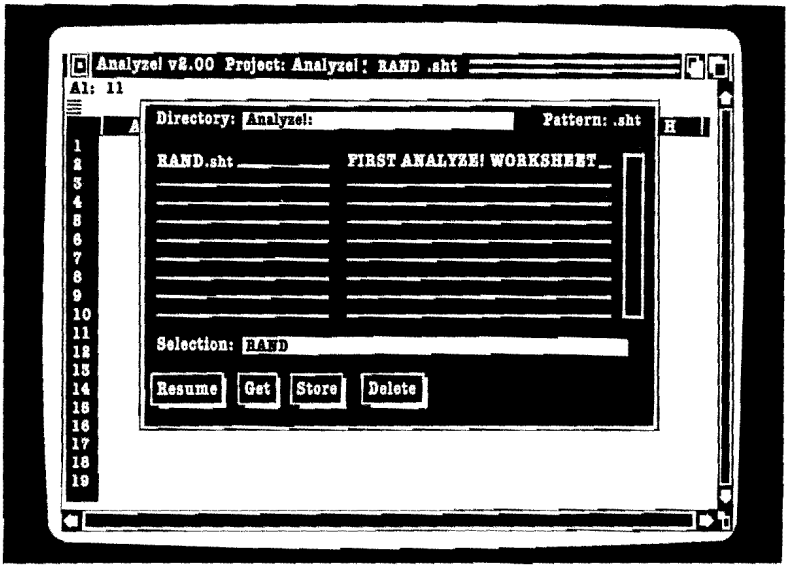
Enter Range to format: (Present Address)

Enter the range you want to reset, and press the <RETURN> key.

Reset the currency format in column F of SALES.SHT. Enter the range F2..F5. Press the <RETURN> key. Column F now displays the numbers as they appeared before you changed them.

THE ARCHIVE REQUESTER

The Archive requester is pictured below:



REPLACING AN EXISTING WORKSHEET

A common use for the Archive requester is to save the changes made to an existing spreadsheet.

1. Select the Archive option on the Worksheet menu.

2. The worksheet you are currently working on will appear in the "Selection:" prompt. Select the Store gadget.

3. When asked "File exists, replace?", select "OK". The changes you made to the worksheet are now saved.

4. Select Resume to continue.

Optionally, you could press the <F8> function key while in the

worksheet to store the sheet without having to use the Archive Requester. This saves you the trouble of having to return to the Worksheet Archive Requester every time you wished to store your changes.

LOADING AN EXISTING WORKSHEET

To load an existing spreadsheet, perform the following steps:

1. Select the Archive option on the Worksheet menu.

2. Use the mouse to select the file you want to load and press the left mouse button.

3. Select Get with the mouse, and press the left mouse button.

For practice, Select and Get RAND.SHT. When you have finished practicing, reload SALES.SHT for the next exercise.

SELECTING A FILE FROM ANOTHER DRIVE OR DIRECTORY

If the file or files you want to access are located on another directory or disk drive, change the entry in the "Directory:" input area and press the <RETURN> key.

1. Select the "Directory:" input area with the mouse.

2. Enter the directory or drive name that contains the file you want to access.

3. Press the <RETURN> key, **ANALYZE!** displays a listing of the files in the directory or disk drive you selected.

RANGE NAMES AND RANGE NAME LABELS

Range names are a way of keeping track of a range of cells when performing many functions.

Creating range names speeds your work when you want to copy a range of information. Remembering a range name is easier than having to enter the same range of cells all the time.

1. Select Range Name Create. The system prompts:

Enter name:

2. Enter the name you want to use for this range. Press the <RETURN> key. The system prompts:

Enter range: (Present Address)

3. Enter the cell range you want to assign the range name to and press the <RETURN> key.

To name a range for SALES.SHT, select Create on the Range Name menu. The system prompts you for a name. Enter DENVER and press the <RETURN> key. **ANALYZE!** prompts you for the range. Since cells A2..F2 are associated with DENVER, enter A2..F2.

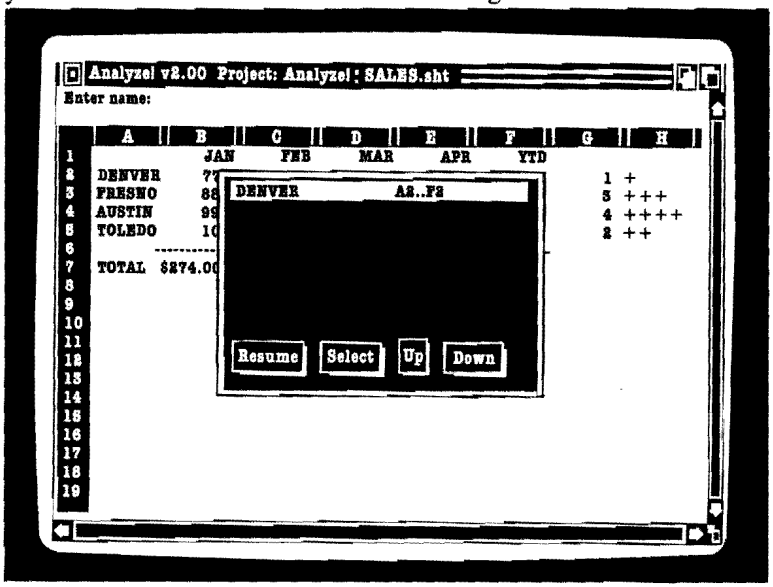
THE RANGE NAME REQUESTER

To display existing named ranges, press the <F3> function key whenever you select any of the Range Name commands, except for Erase. A requester will appear that shows the Range Name and the range of cells to which it refers.

To create a named range using the Range Name requester:

1. Select Range Name Create from the Range menu and press the

<F3> function key. The Range Name requester now appears on your screen. It looks similar to the following illustration:



2. If a Range Name has not been previously defined, the <F3> key displays nothing. To create a new range name, select Resume. The Range Name Requester disappears and you are prompted to:

Enter name:

3. Enter the name you want to use for this range, and press the <RETURN> key. You are now prompted to:

Enter range: (Present Address)

4. Enter the cell range you want referenced by the name you entered.

Continue to enter range names for SALES.SHT. Enter the ranges and range names for FRESNO, AUSTIN, and TOLEDO.

COPYING RANGES BY RANGE NAMES

One of the advantages of naming ranges is you can copy the entire range by using its name instead of the cell range it references.

1. Select Copy on the Range menu.

2. Press the <F3> function key. The Range Name Requester appears.

3. Use the mouse to select the Range Name you want to copy, then choose Select.

4. At this point enter the destination using the keyboard, or select the destination with the mouse. If you enter the destination with the keyboard, press the <RETURN> key. If you select the destination with the mouse and press the left mouse button on the Select gadget.

You may use range names to erase, or move ranges. Instead of selecting Copy, you could select the Erase or Move command.

Range Names can be entered without having to select them from the Range Name Requester. Use the following procedure to copy Denver's sales figures to another location.

1. Select Range Copy, and enter "Denver" as the Range to copy from. Optionally, you could press the <F3> function key, highlight "Denver" with the mouse pointer and then select the Select gadget. You are then prompted to enter the destination address.

2. Move the mouse pointer to cell A9 and press the left mouse button. Denver's sales figures now appear in cells A9..F9.

WORKING WITH FORMULAS

CREATING A FORMULA

There are two kinds of formulas you can use in a worksheet:

- Formulas that perform calculations on specific cells. The formula +A1+A2+A3 totals cells A1, A2, and A3.

- Formulas that perform calculations on a range of cells. @SUM(A1..A3) totals the cell range A1..A3.

In the above examples, the results of the calculations are the same, but they were reached using different methods.

The @SUM formula is an @function, which is discussed in more detail in Chapter 6.

RELATIVE AND ABSOLUTE FORMULAS

A relative formula is one that changes depending on its location. Formulas are always relative unless you change them to absolute.

An absolute formula is one that remains the same, regardless of its location on the worksheet. Instructions on making a formula absolute are given below.

COPYING FORMULAS WITH RELATIVE ADDRESSES

To copy a formula with a relative address:

1. Select Copy on the Range menu or "/RC" from the keyboard. **ANALYZE!** prompts you to:

Enter range to copy FROM: (Present Address)

2. Enter the cell address containing the formula you want to copy and press the <RETURN> key. **ANALYZE!** prompts you to:

Enter range to copy TO: (Present Address)

3. Enter the range or cell you want to copy to. Press the <RETURN> key.

When you move a formula, it performs the calculation on the cell range you move it to. All formulas change to reflect the moved cell. If you move formula +A1+A2+A3 to column C, the formula changes to +C1+C2+C3. This is an example of relative addresses.

You already copied formulas with relative addresses on SALES.SHT. If you want to refresh your memory, review the section on WORKING WITH CELLS at the beginning of this chapter.

CREATING AND COPYING FORMULAS WITH ABSOLUTE ADDRESSES

To identify an absolute formula, precede each coordinate with a dollar sign ($). For example, the formula @SUM(B1..B5) is changed to @SUM(B1..B5).

1. Move the cell pointer to cell F7. The formula in this cell totals the earnings of your U.S. offices.

2. Change this formula to absolute by inserting dollar signs, as shown below:

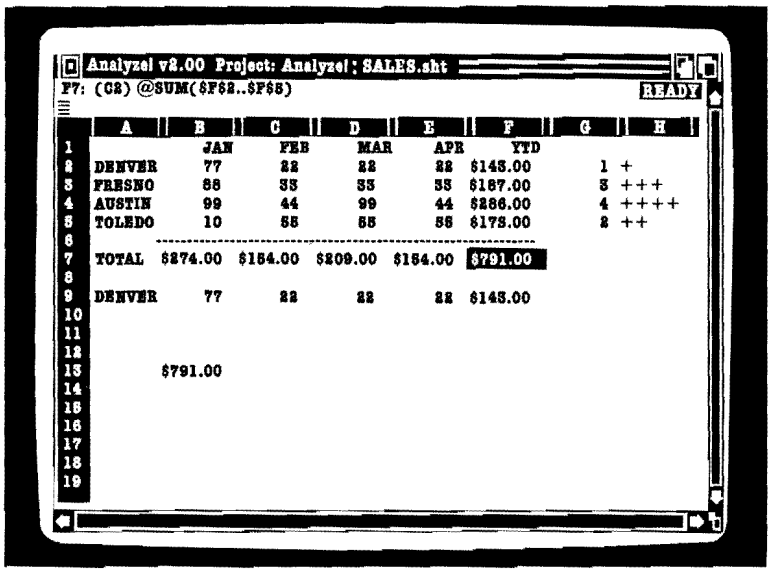
@SUM(F2..F5)

3. Move the cell pointer to cell A13 and enter the label US OFCs.

4. Copy the formula in cell F7 to cell B13.

5. Select Copy on the Range menu. When **ANALYZE!** prompts you to enter the range to copy from, type F7. Enter B13 as the range to copy to.

6. Move the cell pointer to cell B13. Notice that the formula still calculates the sum of cells F2..F5. Move the cell pointer to row E and change some of the values. Notice that cells F7 and B13 both change as you enter the new values. Your worksheet should look similar to the example below.



	A	B	C	D	E	F	G	H
1		JAN	FEB	MAR	APR	YTD		
2	DENVER	77	22	22	22	$143.00	1	+
3	FRESNO	66	33	33	33	$167.00	3	+++
4	AUSTIN	99	44	99	44	$286.00	4	++++
5	TOLEDO	10	55	55	55	$175.00	2	++
6								
7	TOTAL	$274.00	$154.00	$209.00	$154.00	$791.00		
8								
9	DENVER	77	22	22	22	$143.00		
10								
11								
12								
13		$791.00						
14								
15								
16								
17								
18								
19								

COPYING FORMULAS WITH RELATIVE AND ABSOLUTE ADDRESSES

Part of a formula can be absolute while the rest is relative. Refer to the above spreadsheet:

Assume that you have entered the formula @SUM(A1..B5) in cell B6. Further assume that you want to have a grand total, including columns C and D, with the total at cell D6.

1. Place the cell pointer on cell B6 and press the <F2> function key.

2. Insert a dollar sign in front of the A and in front of the 1. This makes A1 absolute; the cell address will not change no matter where it is copied. A relative address would change when it was moved or copied.

3. Copy the formula from cell B6 to cell D6. The A1 remains fixed, while the B5 is adjusted to D5. The result is a grand total of cells A1..D5.

To make D5 absolute, insert dollar signs in front of the D and in front of the 5.

While in the POINT mode, you can use the <F4> function key to toggle the cell references between relative and absolute. This can only be done in the POINT mode, not with the mouse pointer.

MOVING A FORMULA

Refer to the example worksheet in the section above. When a formula is moved, its condition is considered absolute. If instead of moving the entire A1..B6 work area, you moved cell D6 to location B11, cell B11 still displays the results of the unchanged formula @SUM(A1..D5).

MOVING CELLS REFERENCED IN A FORMULA

If you move the cells referenced by a formula, the formula changes.

Try this with SALES.SHT:

1. Move the cell pointer to cell A14 and type the label JAPAN.

2. Move the cell pointer to cell B14, and enter the number 2000 to

represent your sales in Japan.

3. Move the cell pointer to cell A15 and enter TOTAL.

4. Move the cell pointer to cell B15 and enter the formula +B13+B14. Press the <RETURN> key.

5. Move cells A14..B14 to cells D13..E13. Notice that the total in cell B15 does not change. Move the cell pointer to cell B15 to see why. The formula has changed to allow for the new location of the sales for Japan.

PROTECTING AND UNPROTECTING ENTRIES

It is possible to accidentally delete a formula or cell entry with the Copy, Move, and Erase commands. To avoid such a catastrophe, **ANALYZE!** lets you Protect the worksheet.

To protect the entire spreadsheet, use the Protect Enable command on the Worksheet menu.

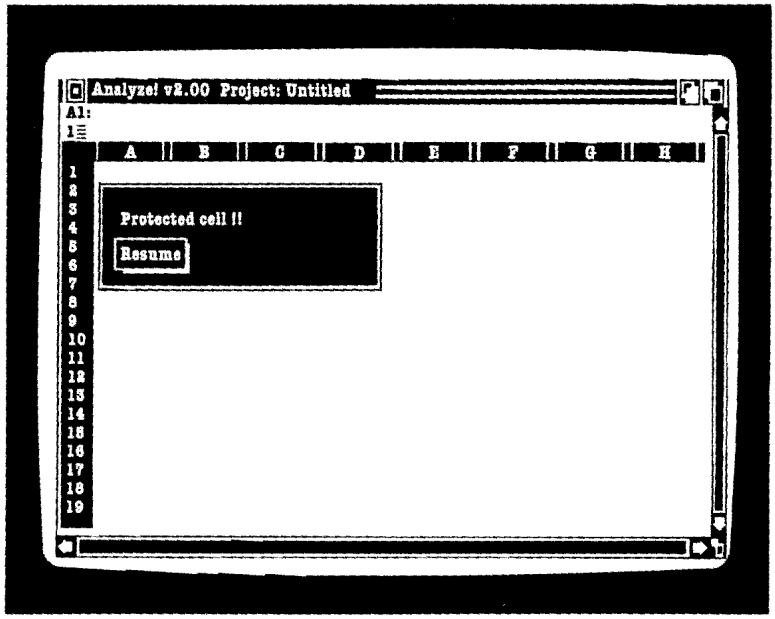
To gain access to the figures:

1. Select the Protect Disable command on the Range menu.

2. Enter the range you want to make changes to and press the <RETURN> key. You will be able to change only the range you selected.

Select the Protect Enable command on the Worksheet menu to protect SALES.SHT. You are now unable to change any of the values. When you try to change a cell, the screen displays:

(See photo next page)



Select the Resume gadget to return to the spreadsheet.

To gain access to SALES.SHT:

1. Select the Protect Disable command on the Range menu. **ANALYZE!** prompts you to:

Enter range to unprotect:

2. Enter the range A9..F9 and press the <RETURN> key. You may now change any figure in the range A9..F9. Notice that when the cell pointer is over an unprotected cell, the input area displays a "U" in front of the cell contents.

3. Erase cells A9..F9.

THE WORKSHEET GLOBAL FORMAT COMMANDS

Global Settings are the settings that normally remain in effect at all times. You can override the global settings with Range commands.

There are five areas that fall into the category of global worksheet format commands:

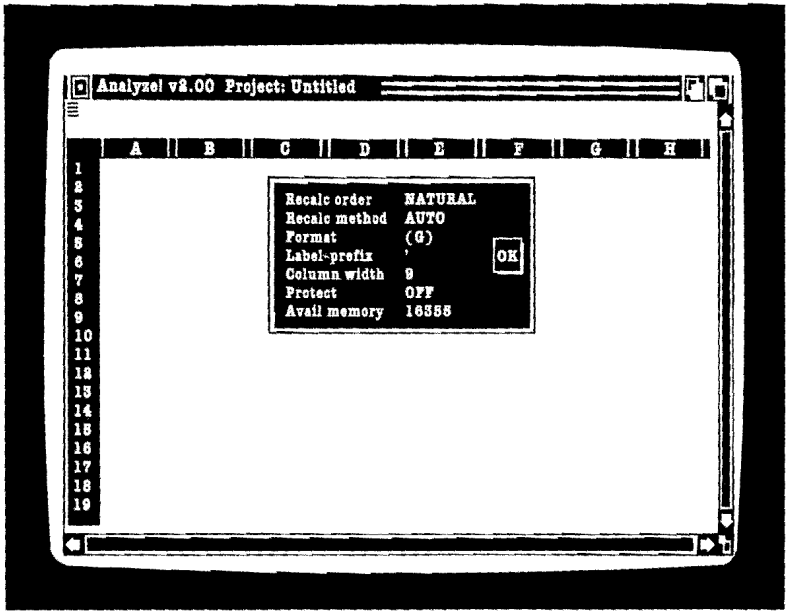
- Column width
- Numerical display format
- Label display format
- Protection enable/disable
- Recalculation options

These options are explained in Chapter 7, in the section dealing with the Worksheet menu. Remember that the Global commands are always in effect for the entire worksheet unless you change them with a Range command.

GLOBAL STATUS

You can inspect the current Global command settings at any time with a pop-up status window. Select the Status command on the Worksheet menu. The following screen appears:

(See photo next page)



You can use the Worksheet Status display to inform you whether the Global Protect is on or off. Select the status command from SALES.SHT. Notice that the Protect is on. Select "OK" to return to the spreadsheet.

CREATING FIXED (NON SCROLLING) TITLES

When working with a large worksheet, your titles and labels move off the window as you scroll the display, which makes it difficult to keep track of where data should be entered.

You can fix the labels on the top and left side of the screen:

1. Position the cell pointer at the top left number.

2. Select Vertical on the Worksheet Titles menu and press the left mouse button. While still pressing the right mouse button, move the highlight bar down to Horizontal and press the left mouse

button. Both Vertical and Horizontal should now be checkmarked.

If you scroll to the right, the leftmost column is fixed, it will always appear in the window, no matter how many columns you scroll to the right. Notice that the column address also remains fixed. If you scroll down, the top row remains fixed, it will always appear in the window, no matter how many rows you scroll up or down.

Using the steps outlined above, fix the labels on SALES.SHT. Scroll to the right with SALES.SHT. Notice that column A stays fixed on the left side of your screen. Scroll back to the left until the months and numbers line up. Now, scroll down. The months stay at the top of your screen, and row 1 is fixed.

The rule of thumb for Worksheet Titles is: if selecting a Horizontal title, the row above the cell pointer will be fixed. When selecting Vertical, the column to the left of the cell pointer is fixed.

PRINTING AN ANALYZE REPORT

There are three steps to printing a report:

1. Choose the print options.

2. Define the print range.

3. Initiate the printing procedure to the printer or a file.

You can send a worksheet directly to the printer or to a file for printing at a later time.

You can print directly to the printer with the Print Go Printer command.

You can print to a file with the Print Go File command. **ANALYZE!** prompts you to enter the filename where the data should be sent.A file can be enhanced by using a word processor or

text editor to add such features as bold printing or underlining. Our Scribble! word processor is such a program. Feel free to contact us if you have any questions concerning this.

CHOOSING PRINT OPTIONS

ANALYZE! offers you a variety of print options. You can set up titles, establish headers and footers, or adjust the page length. You can establish the print formats independently from the display options. You can print formulas instead of values. See Chapter 7 of this manual for a complete list of all option commands.

DEFINING THE PRINT RANGE

You must specify the print range prior to printing, or the a requester with the error message, "No range defined !!" will display.

1. Select Print Range.

2. When you are prompted to Enter Range, enter the coordinates of the range you want printed. You can enter coordinates for the entire spreadsheet or for a portion of the spreadsheet.

INITIATING THE PRINTING PROCEDURE (GO)

The Print Go File command initiates the printing sequence. The print options, including ranges, are stored within the worksheet. Future reports need not be respecified. If you want to change the printer specifications on an existing worksheet, override the existing printer settings with the Print Clear All command.

Define the print options, such as headers, footers, margins, and the print range. Select Print Go to start printing.

Under Print Options, "As-Displayed" and "Use-Margins" are check-marked. "As-Displayed" prints the worksheet as it appears on the screen. When it is not checkmarked, the cell address, corresponding

labels, formulas and values will be printed. "Use-Margins" will print a sheet using all the defined Print Margin items and the Print Options Header and Footer items. Otherwise, these selections are ignored.

Select Print Options Clear to erase all items under the Print Options menu. From there, simply pick which options you wish available when printing your worksheet.

PRINTING TO A FILE

You may want to save a print image of a spreadsheet for printing at a later time. Once created, you can use a word processor to enhance the output, we recommend Scribble!.

Select Print Go File and enter the name of the file you want to print to. **ANALYZE!** generates a disk file using the print options you defined, including margins, headers, and footers. This file contains only ASCII data and should be compatible with any word processor or text editor. Any special attributes, such as boldfacing, underlining or italics will not be printed as part of the disk file.

When entering the disk file name, you may precede the filename with a drive/path or volume name/path. For instance, **DF1:TESTSHT.DOC** or **DATA:TESTSHT.DOC** are both valid entries.

SETTING PRINTER PREFERENCES

If your printout is not appearing as it should, make sure that you have selected the proper printer driver for your printer. This is done through preferences and is explained in your Amiga User's Guide. For most printouts with **ANALYZE!**, set your left margin through preferences to 1 and your right margin to 255. This gives **ANALYZE!** a large enough margin that preferences does not interfere with the settings you have selected with **ANALYZE!**.

SORTING DATA

ANALYZE! has the ability to sort ranges of data. Data can include blank cells, labels or letters, numbers and formulas in either ascending or descending order. Sorting is done based on primary and secondary keys (columns).

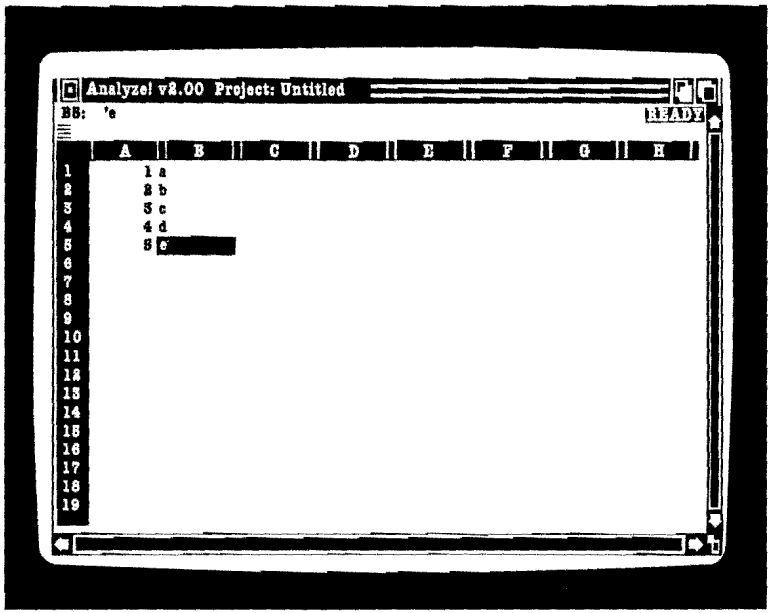
Sorting is performed on a single Primary-Key (column), using an optional Secondary-Key (column). The Secondary-Key is used to determine which Primary-Key cell should appear first when both Primary-Key values are the same.

When sorting is performed, the cells in the Primary-Key column are sorted in the order you've specified. The sort precedence is as follows: blank cells, labels or letters and numbers and formulas, in ascending or descending order. In addition, the other cells that are within the defined sort range, and on the same row, are automatically moved. In effect, this keeps groups of data together.

This allows you to define a sort range that includes sales figures for several cities, sort the sales figures in ascending order and have all the pertinent information, like area name, etc., kept with the sales figure.

As an example, enter the following information:

(See photo next page)



Define the Sort Data-Range as A1..A5. The Primary-Key will be column A. The sort order will be "D" for Descending order. Do not define a Secondary-Key.

Select Sort Go. Notice the information in column B stayed where it was; only the data within the defined sort range was sorted.

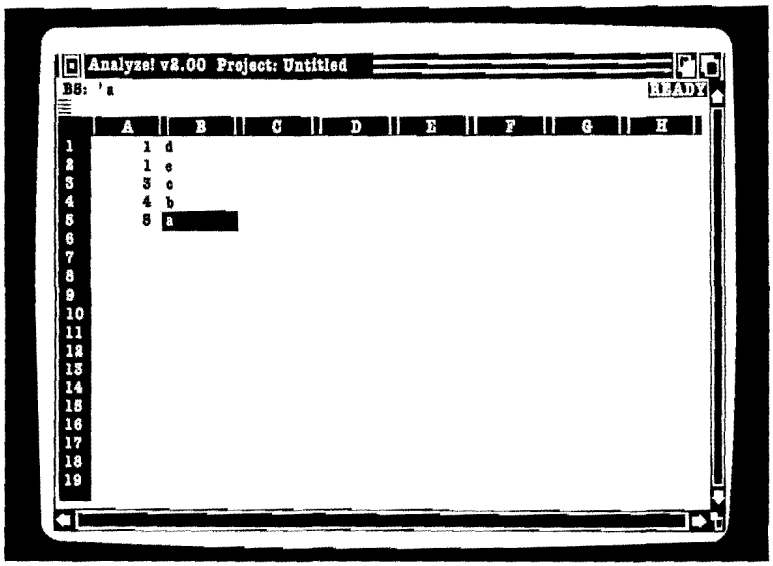
Now define a Sort Data-Range as A1..B5. Select column A as the Primary-Key. Sort in "A"scending order.

Select Sort Go. Not only are the numbers back in the same order we started with, but the letters next to them have also changed position. The reason they changed position was because the defined sort range included that column.

We have two cells with a value of 1. Select Sort Secondary-Key and enter column B. The sort order should be "A"scending.

The Primary-Key and Secondary-Key has to be within the defined sort range or a "Sort key out of range !!" requester will display.

Select Sort Go. The two letters next to the "1" will have switched position. At this time, your spreadsheet will look like this:



ANALYZE! will remember your sort definitions until you select Sort Clear or Worksheet Erase.

By now you should be familiar with how sort works and how increasing your sort range will cause the other cells within that range to move when Primary-Key column is sorted.

The more you practice with these examples, the more proficient you will become and better able to use **ANALYZE!** to its fullest. The next chapter deals with how to create graphs to make your data more understandable.

CHAPTER 4

THE ANALYZE! GRAPHS

INTRODUCTION

Spreadsheets are marvelous tools for analyzing numerical information. After a while, you get tired of looking at numbers.

So **ANALYZE!** has added graphs. They move you from columns of numbers into the instant comprehension of visual representations. It may not occur to someone reading a spreadsheet that expenses have risen 37% in the last three months, but if they see the size of the bars in a graph increase by that much, it is instantly understood the increase is significant. Graphs can easily display numbers in relation to other numbers. A graph showing sales figures related to cost of sales is very effective, but when the difference in size between the bars in the graph is your profit, you can "see" your profit increase as you trim budget costs.

MEMORY REQUIREMENTS

There are several restrictions you should be aware of before beginning. After loading **ANALYZE!** from Workbench, a normal 512K Amiga has approximately 180K of free memory available, with 80K used by the Amiga for requesters, re-sizing windows, etc.

This leaves approximately 100K of memory available for your spreadsheet and graphs. A normal 4-color graph uses approximately 35K of memory and an 8-color graph averages 50K.

With a little subtraction (please use **ANALYZE!** for this. Isn't that the reason you purchased it?) you'll discover that using 2 4-color

graphs gives you enough room for a 30k spreadsheet. Our tests with a default 16K worksheet allowed 3 medium-sized 4-color graphs and 2 medium to full-sized 8-color graphs.

If you need to display several graphs at one time, we strongly recommend you operate the program from CLI without loading Workbench. A maximum worksheet size of 100K is possible if running **ANALYZE!** from CLI and displaying only one graph. These figures may vary depending on your system's environment (number of drives used, etc.).

ANALYZE! has been tested with several memory expansion cards, including: Allegra 512K RAM card, COMSPEC 2-megabyte RAM card, C LTD. 1-megabyte RAM card, and by a third party, an R.S. Data 2-megabyte RAM card. **ANALYZE!** functioned properly with all of these. When using a memory expansion card, memory restrictions become a thing of the past. Megabyte sized spreadsheets are no problem.

OVERVIEW

In this chapter, we'll accomplish two things. First, we'll tell you how to create a graph and explain the options available to enhance the appearance of your graphs. Secondly, we'll show you the Graph menu, command by command.

Before we begin, let's cover some general information about **ANALYZE!** Graphs.

WHAT MAKES UP A GRAPH?

Graphs are made up of a series of numbers called element data ranges. Every number within the data range is called an element and each data range makes up an element of the graph.

Once a graph is displayed, legends, group and element labels are used to enhance the appearance of what is shown and make the graph more comprehensible.

These options are covered in detail further in the chapter. Right now we're going to create some graphs using the SALES.SHT worksheet.

CREATING A GRAPH WITH ANALYZE!

At this time, please load the SALES.SHT worksheet. If you did not follow the exercises shown in Chapters 2 and 3, you may wish to go back and review them, so the examples given here can be easily understood.

DEFINING THE ELEMENTS OF A GRAPH

Graphs are made up of elements. The elements are defined by entering a range of data. **ANALYZE!** allows up to 6 data ranges to be defined and each data range can consist of as many cells as you desire. With the Pie and Z-Pie graphs, we recommend a maximum of 10-15 elements for a data range, because a Pie graph uses each cell within the element data range as a separate element of the graph and this could result in a crowded graph.

The first graph we create will be a Pie graph. Using the YTD totals for each city, we'll be able to "see" which city has the most in sales.

With the SALES.SHT loaded, hold down the right mouse button and move the mouse pointer to the Graph selection on the title bar. The Graph pull-down menu will appear. Move the mouse pointer down to Data, a pop-out menu will appear with the letters A-F. Highlight the "A" and release the right mouse button.

By now you should be familiar enough with **ANALYZE!** to know that the same menu item you selected with the mouse pointer could

have been entered as easily by pressing "/GDA" from the keyboard. This topic was covered in Chapter 2 in case you need to review the information.

You will be prompted to enter the element data range. Enter the data range F2..F5 by typing it from the keyboard or using the mouse pointer to highlight the cells. Entering cell ranges from the keyboard and the mouse pointer was covered thoroughly in Chapter 3; please review that chapter again if you're having difficulty.

DEFINING THE TYPE OF GRAPH

Once the element range(s) for a graph have been entered, the next step is to decide which Graph Model will be selected. **ANALYZE!** supports 8 different models to represent your data. All of them will be discussed shortly.

Use the mouse pointer to select Graph Model Pie. Hold down the right mouse button and move the mouse pointer to the Graph selection on the title bar. The Graph pull-down menu will display. Move the highlight bar down to Model and a pop-out menu will appear with 8 selections. Move the mouse pointer to the right and highlight Pie. When Pie is highlighted, release the right mouse button.

To double check this, select the Graph menu again and highlight Model with the mouse pointer. Pie should be checkmarked.

We just completed the two necessary steps needed to create a graph. Before we view the graph, let's add one more piece of information that will make the graph understandable.

ADDING ELEMENT LABELS

Viewing a graph without information that connects the elements of the graph to the data in the worksheet can make a graph almost useless. If you viewed the above graph you'll have noticed four

elements in the Pie graph with no indication of which element represented which city.

Hold down the right mouse button and pull down the Graph menu. Move the mouse pointer down until Label is highlighted. Now move the mouse pointer down the pop-out menu that appeared and highlight option "A" for the elements representing Data range "A".

Release the right mouse button and a prompt will appear asking:

Enter element label range: (current address)

Use the mouse pointer to highlight cells A2..A5 or enter the cell range from the keyboard. The element label range will correspond to the element data range defined earlier.

Now your graph is easily understood. Each element in your Pie graph will have a city name attached. There can be no question as to which city has the higher percentage of YTD sales when the graph is viewed.

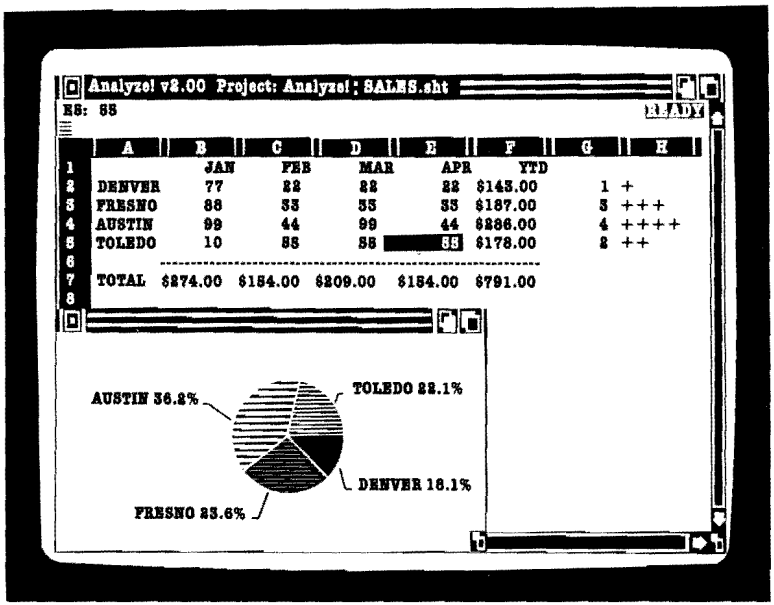
VIEWING THE GRAPH

With the element data range and element label range defined, you are now ready to view the graph you created. Viewing a graph can be done by selecting Graph View with the mouse pointer, pressing the <F10> function key or typing "/GV" from the keyboard.

Perform one of the Graph View functions defined above at this time.

When the graph window appears, notice that it is in 4-color and appears in the same window as the **ANALYZE!** worksheet; the default Graph Color is 4. Each graph window has a re-size window gadget in the lower right-hand corner of the window and a close window gadget in the upper left-hand corner.

Move the mouse pointer to the graph's drag bar (the top of the graph window), press and hold down the left mouse button and move the window to the lower left corner of the screen. Your graph should appear as follows:



When you move or re-size a graph window it becomes the active window. Notice the **ANALYZE!** title bar is ghosted. Menu items can be selected in this instance, but any menu command requiring keyboard input will be ignored. Move the mouse pointer so it appears in the **ANALYZE!** worksheet and press the left mouse button.

CHANGING VALUES AND RE-DISPLAYING THE GRAPH

The great thing about **ANALYZE!** graphs is you don't have to do anything special when the worksheet recalculates. Whenever the worksheet is recalculated, the graph is re-displayed.

To demonstrate this, move the cell pointer so it is at E5. Change Toledo's April sales from 55 to 88 and press the <RETURN> key. Toledo's piece of the Pie increased from 22.1% to 25.2% in the blink of an eye.

4-color is nice, but take a look at 8-color. Select Graph Color 8 by holding down the right mouse button and moving the mouse pointer to the Graph selection on the title bar. When the pull-down menu appears, move the highlight bar down to Color. A pop-out menu will appear with the items 4 and 8. Move the mouse pointer so the highlight bar is over the "8" and release the mouse button.

A custom screen will appear and the graph will re-draw in brilliant colors. Experiment; move the graph window and re-size it to get a feel for how easy it is.

While in the custom screen, all the menu items are available, but any menu item requiring keyboard input is inaccessible from the custom screen. There are three options that will work around this.

One option is to "drag" or move the graph window down from the top of the custom screen and use the left mouse button to pull down the custom screen's title bar, far enough, that **ANALYZE!**'s input prompts can be displayed.

The other option uses the Left Amiga N and M keys. While the custom screen is displayed, press the Left Amiga N key by holding down the Left Amiga key and pressing the letter "N" on the keyboard simultaneously. If the **ANALYZE!** title bar appears ghosted, press the left mouse button to activate the **ANALYZE!** window. Make any additional changes to the worksheet and press the Left Amiga M key to return to the custom screen.

By the time you get back to the custom screen, the graph will be re-drawn.

The last option when using custom screens with 8-color graphs is selecting the close window gadget with the left mouse button every-time you need to make changes to the ANALZYE! worksheet. After making the changes to the worksheet, press the <F10> function key to re-display the graph. The graphs will be shown with whatever colors have been selected with the Graph Color menu option.

The close window gadget is located in the upper left-hand corner of the graph window and appears as a small box with a dot in the center. To select the close window gadget, move the mouse pointer so it is located on the gadget and press the left mouse button. The graph window will be closed.

When a graph is viewed again, it is shown using its previous position on the screen and its window size.

Since graphs are windows, they can be hidden behind other windows. This can sometimes cause confusion if you have defined a graph, placed it behind another window so it is no longer visible and then try to view the graph again using the <F10> function key. Nothing can be displayed, since **ANALYZE!** knows the graphs have not been closed and therefore can be viewed. Always make sure you close the graph window using the close window gadget located in the upper left-hand corner of the graph window.

With the basics of displaying graphs already reviewed, let's learn how to improve the appearance of your graphs, giving them that "professional" look.

USING LEGENDS AND TITLES

Legends identify data ranges and are alternatives to using element labels. ANALYZE! allows up to 6 defined data ranges, permitting a maximum of 6 legends for a graph.

For the next example, we'll reset the graph's element labels, replace them with legends and add a couple of titles.

Use the mouse to select Graph Reset Elements. Press and hold down the right mouse button, move the mouse pointer to the title bar so Graph is selected. Graph's pull-down menu will appear. Move the highlight bar down to Reset; a pop-out menu will display. Move the mouse pointer to the right and glide down the pop-out menu until Elements is highlighted. Release the right mouse button.

If your graph is still displaying, it will re-draw, this time with the element labels missing. See how important labels, legends and titles are to a graph?

Next we'll select Graph Labels Legend. Press and hold down the right mouse button and move the mouse pointer to the title bar. Highlight Graph with the mouse pointer; a pull-down menu will display. Move the mouse pointer down the menu until Labels is highlighted. A pop-out menu will appear. Now move the mouse pointer to the right until Legend is highlighted. Release the right mouse button. A prompt will appear with:

Enter label range: (current address)

From the keyboard, enter A2..A5 and press the <RETURN> key or press the left mouse button and highlight the above range with the mouse. The same range can also be entered using the arrow keys. The information on entering ranges with the keyboard, mouse and arrow keys is covered in Chapter 3. Please refer to that chapter if you're having difficulties.

If the graph is displayed, four legends with the four city names will appear in the re-drawn graph. While **ANALYZE!** will only allow six legends, you are not limited to one legend per data range. All six legends may be used even when working with one data range.

The graph's appearance has improved with the addition of legends;

let's add titles so everyone will know what the graph represents.

Select Graph Titles First by pressing and holding down the right mouse button. Move the mouse pointer to the title bar and highlight the Graph selection. Graph's pull-down menu will appear. Highlight Titles with the mouse pointer and move the mouse pointer to the pop-put menu. Highlight First with the mouse pointer and release the right mouse button. A prompt will appear with:

Enter title number one:

From the keyboard, enter "Quarterly Sales Figures" and press the <RETURN> key. The graph will re-draw with the new title you entered.

Select Graph Titles Second by repeating the above procedure, only this time highlighting Second with the mouse pointer. Notice that First is checkmarked (meaning it has been defined). When Second has been highlighted with the mouse pointer, release the right mouse button. The following prompt will appear:

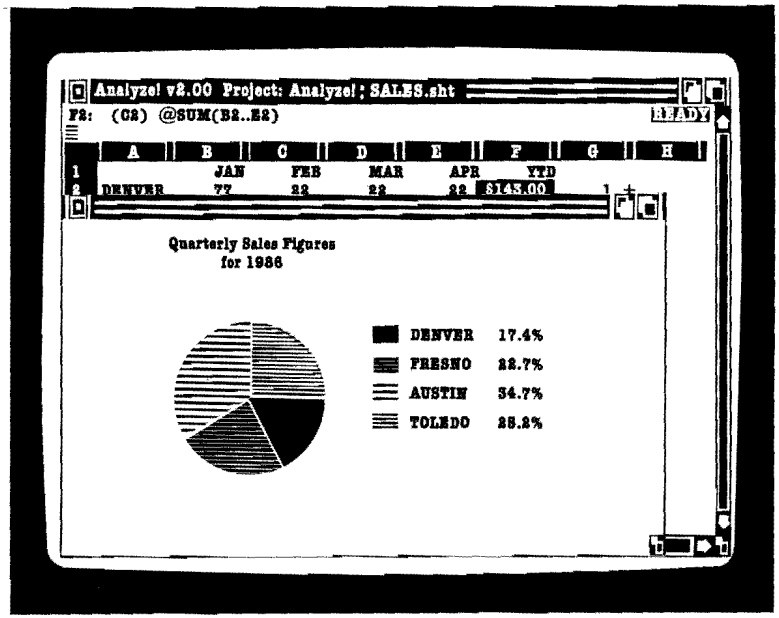
Enter title number two:

From the keyboard, enter "for 1986" and press the <RETURN> key. The graph will re-draw and include the second title entered.

Notice as each title was entered, the graph's size decreased and the legends moved down in the window. This is perfectly normal since **ANALYZE!** will always compensate for additional titles and labels by decreasing the size of the graph. Should the graph's window be too small, portions of the legend, titles or element labels may be chopped off.

At this time, feel free to increase the graph's window size by using the mouse. Move the mouse pointer to the graph's drag bar at the top of the window and hold down the left mouse button. Move the

graph window up a bit on the screen and release the left mouse button. Now move the mouse pointer to the window re-size gadget in the lower right-hand corner of the graph window and press the left mouse button. While holding down the left mouse button, pull the re-size gadget to the bottom of the screen. Release the left mouse button at this time. Your screen should look similar to the one below:



Not only is the graph more presentable, it can be understood by anyone.

DEFINING MULTIPLE RANGES AND GRAPHS

Pie graphs are generally used when only one data range is being defined. The latter part of this chapter will cover instances when a second data range is useful.

This next graph will be a bar graph which will contain 4 data ranges.

Select Graph Number 2 from the Graph menu. Press and hold down the right mouse button and move the mouse pointer to the title bar. Highlight the Graph selection on the title bar. With the pull-down menu displayed, move the mouse pointer down to Number. A pop-out menu will appear with the Number 1 checkmarked. Move the mouse pointer down the pop-out menu until Number 2 is highlighted. Release the right mouse button.

Any items selected under the Graph menu with the Graph Number 2 checkmarked will pertain only to that graph. If you're not sure which graph is currently selected, use the mouse pointer to display the Graph Number pop-out menu.

The next step will be to define the data ranges which will be the elements in the graph. Select Graph Data A from the Graph menu. Press and hold down the right mouse button and move the mouse pointer to the title bar and highlight the Graph selection. Now move the mouse pointer down the menu until Data is highlighted. A pop-out menu will display with the letters A - F; move the mouse pointer to the right until the letter "A" is highlighted and release the right mouse button. The following prompt will appear:

Enter element data range: (current address)

Enter the data range B2..E2, through the keyboard, using the mouse pointer to highlight the range or by using the arrow keys.

Repeat the above steps, this time select Graph Data B, notice Graph Data A is checkmarked since the range has been defined. When the prompt appears asking for the data range, enter B3..E3 as the data range.

After the data range for Graph Data B has been entered, select Graph Data C. Enter B4..E4 as the data range.

The last data range will be Graph Data D. Enter B5..E5 for that data range.

We have now highlighted each city's sales over a four month period. The next step is to define the graph model we'll use to represent our data. Please do not view this graph until you are told to do so, the reasons for this will be explained shortly.

Select Graph Model Bar. Press and hold down the right mouse button and move the mouse pointer to the title bar. Highlight the Graph selection. When the pull-down menu appears, move the mouse pointer down to Model; a pop-out menu containing the graph models will display. Move the mouse pointer to the right so Pie is highlighted and then down one line so Bar is highlighted. Release the right mouse button.

Let's add the same legend we used for the Pie graph. Select Graph Labels Legend. Press and hold down the right mouse button and move the mouse pointer to the title bar. Highlight the Graph selection. When the pull-down menu is displayed, move the mouse pointer down until Labels is highlighted. When the pop-out menu for Labels appears, move the mouse pointer to the right and highlight Legend. When Legend is highlighted, release the right mouse button.

A prompt will appear asking for the data range:

Enter legend label range: (current address)

Enter the range A2..A5 using the keyboard, mouse pointer or arrow keys.

If you wish, enter the same titles we defined for the Pie graph, "Quarterly Sales Figures" for Graph Titles First and "for 1986" for Graph Titles Second. If you have difficulties entering the titles, refer to the section "USING LEGENDS AND TITLES" at the beginning

of this chapter.

We're going to add one additional title to this graph before continuing. Select Graph Titles Y-Axis by pressing and holding down the right mouse button and moving the mouse pointer to the Graph selection on the title bar. When the Graph pull-down menu displays, move the mouse pointer down the menu until Titles is highlighted. A pop-out menu will display with First and Second checkmarked if you entered the above titles. Move the mouse pointer to the right until Clear is highlighted and then down until Y-Axis is highlighted. Release the right mouse button. The following prompt will appear:

Enter Y-Axis title:

Enter "Thousands" and press the <RETURN> key. When the bar graph is displayed we'll know what the scale represents.

USING GROUP LABELS IN A GRAPH

The last addition to the graph will be group labels. Group labels identify "groups" of ranges. When you have more than one range in a graph, the elements from each range are displayed next to each other. To identify each of these element groups, use group labels. At this time, select Graph Labels Group by pressing and holding down the right mouse button and moving the mouse pointer to the title bar. Highlight the Graph selection, and when the pull-down menu displays, move the mouse pointer down the menu until Labels is highlighted. A pop-out menu will display with Legend checkmarked. Move the mouse pointer to the right so Legend is highlighted and down one line until Group is highlighted. Release the right mouse button and the following prompt will appear:

Enter group label range: (current address)

Enter the range B1..E1 using the keyboard, mouse pointer or arrow keys. This will place the month under each set of ranges in the graph.

Press the <F10> function key to view the graphs. The Pie graph will appear first, in the location it was before you closed the graph window. In the upper left-hand corner, Graph Number 2 should appear. **ANALYZE!** will always display the graphs in the order that they were defined, number 1, then number 2, etc.

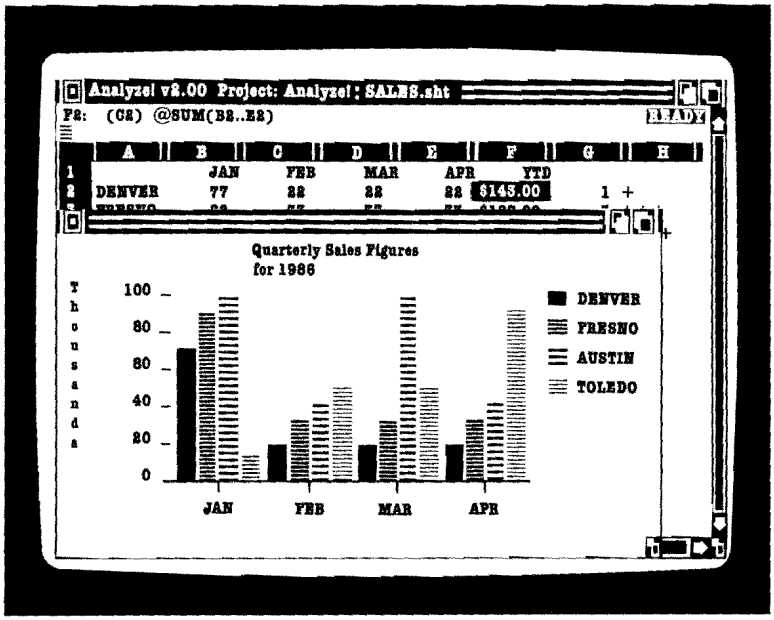
Something to remember when moving graph windows: the window that was activated last by pressing the left mouse button inside the graph window will become the current Graph Number selection.

This allows you to activate a graph window and make additional changes that will only pertain to that graph. Even with graphs displayed on the screen, **ANALYZE!**'s menus are still available to make changes to the worksheet.

If you try to use a window's sizing gadget and the window simply "snaps back" to its original size, this usually indicates the Amiga is running low on memory. This can happen when using multiple graphs with a large worksheet. You can recover by selecting the close gadget in the upper left hand corner of the window and removing that graph.

Select the close window gadget for the Pie graph so only the Bar graph is displayed. On the title bar of each graph window appears two screen depth arrangers on the right-hand side of the title bar. They are used to bring windows to the front or move them behind other windows. Move the mouse pointer to right screen depth arranger on the Pie graph's window and press the left mouse button. Graph Number 1 will appear to the front. Now press the left mouse button while the mouse pointer is located over that graph's close window gadget. This is an easy way to remove graphs that you do not wish displayed without having to erase the graph definitions.

Feel free to move and re-size the graph window to better display the graph. Your graph should look similar to the one below:



See how each title, legend and label helps make the graph easier to understand? The legends help identify which elements represent which city and the titles are used to explain what the graph represents, with the Y-Axis title giving some meaning to the scale that appears on the left-side of the bar graph. The group labels identify which month each set of elements represents.

You can easily see that the graph could have been expanded to include the YTD figures for each city, as the Pie did.

ARCHIVING GRAPH DEFINITIONS

ANALYZE! has the ability to store just graph definitions, allowing you to store and retrieve up to 4 graphs at a time.

This is useful in many instances where you have defined a particular

graph and do not wish to go through the trouble of re-defining all the data ranges, titles, labels, etc..

Select Graph Archive Definitions from the Graph menu by pressing and holding down the right mouse button and moving the mouse pointer to the title bar. Highlight Graph so the pull-down menu displays. Move the mouse pointer down one item so Archive is highlighted. A pop-out menu will display with Definitions and Picture. Move the mouse pointer to the right until Definitions is highlighted and release the right mouse button.

An Archive Requester will appear containing no entries. From the keyboard, type: "SALES1" and press the <RETURN> key (KS 1.1 users will have to move the mouse pointer down to the "Selection" input area and press the left mouse button to activate the prompt before entering the filename). When the selection is entered, select the Store gadget by pressing the letter "S" from the keyboard (KS 1.1 users will have to move the mouse pointer over the Store gadget and press the left mouse button). An optional comments requester will appear, enter "GRAPHS FOR SALES SHEET" and press the <RETURN> key (KS 1.1 users will have to move the mouse pointer so it is located in the input area of the comments requester and press the left mouse button once to activate it).

The disk drive will access and then display SALES1.gph. You are now free to create new graphs, knowing you can Get the graph definitions at anytime and have the graphs re-display as they did originally when the definitions were Stored. Remember when Getting a graph definition that any graphs currently defined will be erased. **Always save valuable data!**

This concludes the Graph Tutorial. Feel free to experiment with your graphs to help you understand the full power of this **ANALYZE!** feature. To return to the worksheet press the letter "R" from the keyboard (KS 1.1 users will have to move the mouse pointer over the Resume gadget and press the left mouse button).

THE GRAPH MENU

This menu contains all of the commands you will use in creating graphs with ANALYZE!. We'll take a look at each command and all of the sub-commands associated with them. The main menu options, displayed when you pull-down the Graph menu with the mouse pointer, consists of:

Graph
Archive
View
Color
Number
Model
Data
Labels
Titles
Scale
Options
Reset
Print

Graph Archive Definitions

This command is used to store all the current graph settings on disk so they can be recalled later, avoiding having to re-define the graph each time you want to view it. Note that when you Archive the spreadsheet itself (with Worksheet Archive), the current graph definitions are stored with the sheet (.sht) file. Why then, a separate command?

Storing the worksheet saves only the current graph settings. With the multiple graph options, this can be up to 4 graphs. Sometimes this is not practical because of the amount of memory multiple graphs

requires. While there are many instances where you you may want more than one graph defined for a spreadsheet, most of the time you'll only be viewing one at a time.

Since saving the spreadsheet itself saves up to 4 graphs, we've included Graph Archive to store JUST the graph definitions for alternate views of the same spreadsheet. Store your most commonly used graph with the spreadsheet and then store any required alternate graphs with Graph Archive Definitions. Graph Archive Definitions automatically adds the pattern ".gph" to the end of the filename you enter. Each ".gph" definition file will store up to 4 graph definitions; when loading a graph definitions file, all graphs currently defined are erased.

To use the command, select the Archive command on the Graph menu with the mouse. The drive will access the disk for a few seconds and a requester display with all the files containing the pattern ".gph". Use the requester as you would with any other **ANALYZE!** Archive requester. (For complete details, please see "Using **ANALYZE!**'s requesters" in the general manual tutorial section.)

Graph Archive Picture

This option saves whatever graphs being viewed to a disk file in IFF file format. This allows your graphs to be shown later with a "SHOW" program, or edited with any of the popular "paint" and "draw" programs.

Graph View

This command has **ANALYZE!** draw the currently defined graph (or graphs, if using multiple graphs). When you've completed defining the graph select this command.

If you're using 4-color graphs, each graph will open its own window and display. If you're using 8-color graphs, **ANALYZE!** will open a

custom screen, each graph window will open and the graphs will display.

This command is duplicated by pressing the <F10> function key.

Graph Color

The options in this sub-menu are:

4
8

Use these to select the color of your graphs. 4-color graphs use the standard Workbench screen for their windows. Because of this, you can re-size the graph windows and have them on the screen at the same time as your spreadsheet. 8-color graphs need to open a custom screen for their windows. You can "pull down" that screen and see the spreadsheet on the Workbench screen underneath, or use the Left Amiga N and M keys. A Left Amiga N will display the active Workbench screen (**ANALYZE!**) to the front, and the Left Amiga M will put the Workbench screen to the back and display the 8-color graphs. Once in the other screen, press the left mouse button to activate the screen.

Aside from the custom screen, the big difference between 4-color and 8-color graphs is the number of colors and the amount of memory used in producing the graphs. 4-color graphs will display two solid colors before using patterns to differentiate between the various elements. 8-color graphs will use up to six solid colors before using patterns. The other two colors are used for the background and graph border. The color you choose depends upon your application. To have graph windows overlay your spreadsheet window, we recommend the 4-color graphs.

Graph Number

The options under this menu are:

1
2
3
4

Use this command to have more than one graph displayed at the same time. When you first load **ANALYZE!**, the default selection is Number 1. If you don't want more than one graph on the screen at one time you'll never need to change this.

To define additional graphs, select this command and highlight the number of the graph you want defined (1 through 4). A check mark displays the currently defined graph's number, useful when defining one graph after the other.

If defining multiple graphs, saving the worksheet will save both graphs. If you save the graph settings with Graph Archive Definitions, you save both graphs. This is true for however many graphs you choose to define. Remember, multiple graphs mean that EACH and EVERY time you view the graph, you will see all the defined graphs displayed.

To remove a graph from a definition that includes multiple graphs, select the Graph Number you want removed, then select the Graph Reset All command. This completely erases the graph definition.

Finally, note that each graph opens a small window starting at the upper-left hand side of the window. When multiple graphs are defined and viewed, the windows will overlay one another. Graph View remembers where each graph should appear and its size. When re-viewing a graph or saving its definition, the window size and position will be displayed or stored.

Graph Model

This menu contains the following selections:

Pie
Bar
Line
X-Y
Area
Stk-Bar
Z-Pie
3d-Bar

This selection determines how the data in your graph will be displayed. If you're not certain what these various graphs look like, take some time to display each one of them. You can define your data and keep changing the graph model until you approve of the way the graph shown represents your data.

There are certain restrictions involved with several of the graphs. Below is a list of each graph which needs special information and a detail of the restrictions:

Pie. The Pie chart can display only one range and only about 10-15 elements. If you put more elements than this into the graph, it will display, but labels may overprint each other and become illegible. Pie charts DO use a second range (B-Range), but not to display. The B-Range is used to "explode" elements of the pie chart. Exploded elements are pieces of the pie that are separated from all other elements and they stand out from the rest of the elements in the graph. A non-zero value in the B-Range explodes the corresponding element in A-Range. A value of 0 keeps the piece joined together with the pie. If the B-Range is not as large as the A-Range, elements not specified as exploding are assumed to be normal. For example:

	A	B	C
1	100	0	
2	110	0	
3	212	1	
4	206	0	

If you define A-Range as A1..A4, and B-Range as B1..B4, then the third element of A-Range (A3) will have its element in the pie chart exploded.

The Pie chart is also the only graph (other than Z-Pie) where element labels longer than 2 characters are practical, because element labels are printed horizontally in pie charts.

X-Y. Each point in an X-Y graph must be made up of two data ranges and must have a minimum of two ranges for a point to appear on the graph. Additional ranges will be set against the A-Range. This effectively gives you up to 5 pairs of ranges totalled (A-Range paired with B-Range, A-Range paired with C-Range, A-Range paired with D-Range, etc.). The A-Range specifies the X-Axis and any additional ranges specify points on the scale.

Stk-Bar. A stacked bar graph draws each bar as the total of all its elements and shows each element separately within the bar. This causes some people to think the graph scaling (the incremental points along the side of the graph) is incorrect, when in fact it is not.

Z-Pie. Also known as 3d-Pie. The 3 dimensional pie chart carries the same restrictions and rules as the normal pie chart.

3d-Bar. The 3 dimensional bar chart is unique since it's the only graph where one range could possibly obscure another when the graph is drawn. This means that 3d-Bar graphs are not necessarily suited to all forms of data. You can adjust the viewing angle with the Pitch/Yaw option under the Graph Options menu to improve the display in some cases. But there may be some instances when a 3d-

Bar graph is simply not proper.

Graph Data

The options under this menu are:

A
B
C
D
E
F

ANALYZE! Graphs can contain up to six ranges per group with an unlimited number of groups and elements in the ranges. There are two exceptions; the X-Y graph, with only three ranges per group, and the Pie graph, displaying only one range with an effective display range of only 10-15 elements.

To define each range in your graph, select the option with corresponds to the range you want to define. A prompt will appear at the top of the **ANALYZE!** window asking you to enter the range coordinates. You may define the graph range as you would any other range in **ANALYZE!**. You may type in the starting and ending coordinates of the range (e.g. A1..A10), use the mouse to point out the range, or use the keyboard to enter the range. To point with the mouse, point to the starting cell in the range, press the left mouse button and "drag" the paint roller until the entire range is highlighted. Then release the left mouse button. To point with the keyboard, use the arrow keys to highlight the range. The anchor key " . " can be used to anchor the range at a particular cell address. Move the cell pointer to the last cell in the range and press the <RETURN> key. The range is immediately highlighted and marked.

This command is defining data ranges ONLY. Labels and all other ranges are defined with additional commands.

Graph Labels

This menu has the following options:

Legend
Group
A
B
C
D
E
F

The proper use of labels is as important as selecting the proper type of graph to display your data. An unclear graph makes no point and is of little value to you. Labels will serve to identify the data. **ANALYZE!** Graphs offer three different kinds of labels:

Legend. Legend labels are used to identify the ranges in a graph. If you define a graph with four different ranges and you want labels on the graph that identify each range, you can define any range of up to 6 cells as being the "legend range".

Group. Group labels identify a "group" of ranges. When defining more than one range in a graph, you will have elements from each range displayed next to each other. To identify each of these element groups, use group labels.

Element. These labels identify the individual elements within the ranges. Since you can have up to six ranges, there are six different options for elements labels. Element labels work quite well with pie charts, regardless of length, but it is not recommended they exceed two characters in length with other graphs. With pie charts, element

labels are printed horizontally. With all other graphs, element labels display vertically and can be too long to display properly in the graph window. By combining group and legend labels, you shouldn't need to use element labels with the other graphs.

Graph Titles

Clear
First
Second
X-Axis
Y-Axis
Z-Axis

ANALYZE! Graphs permit you to define titles for each graph window. As with labels, titles serve to make your graphs easier to understand. You can have one or two titles above the graph, and one on each axis (across the bottom, or along the side).

Clear. This option erases all the titles for the current graph; use it when you want to start over again.

First. The First title is located at the top of the window.

Second. The Second title is located at the top of the window, centered underneath the First title and smaller in size.

X-Axis. This title appears horizontally along the bottom of the graph.

Y-Axis. This title appears vertically along the left side of the graph.

Z-Axis. This title works ONLY for 3d-Bar graphs (since they are the only graph with a Z-Axis) and appears along the right hand side of the graph.

Whenever you select a title option you'll be prompted for the text of the title. Enter it and press the <RETURN> key. The title will be added to the graph immediately.

Please note that whenever you begin using titles, the graph itself must reduce in size to accommodate the additional text. You may need to increase the size of your graph window, if you reduce it, for the graph to remain legible.

Graph Scale

This command displays the following options:

Automatic
Manual
Low-limit
High-limit

ANALYZE! Graphs normally create the scale for you; this is Automatic scaling and it is the default condition. Under most circumstances you will not need to change it. If you should have a special situation, **ANALYZE!** is flexible enough to accommodate you.

Automatic. ANALYZE! Graphs automatically creates the scale.

Manual. This option lets you specify the low and high points of the scale. In some cases, you may find you need to control where the scale starts and stops to make a more presentable graph. This may be needed when you have one element with a very low value, while the rest of the elements are much greater in value. By changing the High-limit of the scaling you force the smaller value to appear a bit more normally in the graph. Used in combination with the next two options, Manual scaling lets you do just that.

Low-limit. Specifies the starting point of a manual scale.

High-limit. Specifies the finishing point of a manual scale.

Graph Options

This command contains a collection of miscellaneous options that affect the appearance of your graph. Much like labels and titles, they can used to greatly enhance the picture you make with your graph.

Clear. This option resets all of the other options in this pop-out menu. Use this when you want to start over with defining your options.

Lines. This option causes the the X-Y graph to be drawn with lines connecting the points. This is the default setting.

Symbols. This option causes the X-Y graph to be drawn with the symbol located at the X,Y coordinate that's specified by the data ranges selected. This is useful for special applications, such as displaying an X-Y graph. Select both Lines and Symbols to see each coordinate symbol connected with a line.

X-Grid. This option turns on the grid lines for the X-Axis (which is going horizontally across the graph). These grid lines identify each element group and are especially useful with line graphs where it is difficult to see individual elements.

With the X-Y graph, the X-Grid has some additional meaning, since the X-Axis becomes another Y-Axis. In this case, the X-Grid is also identifying points on a scale and not elements or element groups.

Y-Grid. This option turns on the grid lines for the Y-Axis (which is going vertically up the graph). These grid lines identify each point on the scale and are useful to accurately determine the values of the various elements when viewing the graph.

Z-Grid. This option turns on the grid lines for the Z-Axis (which is going from left to right on the 3d-Bar graph). These become the grid lines for the "floor" of the 3d-Bar graph's box.

Pitch/Yaw. This is used to specify a new viewing angle for the 3d-Bar graph along its X-plane. This lets you "tip" the graph towards or away from you. A Pitch of 0 has you looking at the tops of the graph, and a Pitch of 90 is straight up and down. The default value is 40. These values are expressed in degrees of viewing angle. After entering the Pitch angle, you'll be prompted for the Yaw. This is similar to Pitch, except that it moves the graph on its Y-Axis, allowing you to "turn" the graph side to side. A Yaw of 0 has you looking straight into the sides of the bars, and a Yaw of 90 is looking at the front of the elements. The default value is 40.

These options are stored either as part of the graph definition attached to the spreadsheet, or with the separate graph files (Graph Archive Definitions).

Graph Reset

This command displays the following options:

All
Data-Ranges
Element-Labels
Legend-Labels
Group-Labels

As you define graphs with **ANALYZE!**, there will be many times you'll either make a mistake or want to change something on a graph and need to erase some or all of the current definitions. This command is where you accomplish that.

All. Resets ALL of the graph settings for the Graph Number

currently selected. It gives you a "clean slate" to work with. Please use caution when selecting this option. If you've not saved your graph definitions, they're gone for good and you'll have to re-enter them.

Data-Ranges. Resets the data ranges A through F. This command erases all of the data ranges as soon as you select it. Please exercise a little caution when using it so you don't lose all your data ranges.

Element-Labels. Erases the element labels.

Legend-Labels. Erases the legend labels.

Group-Labels. Erases the group labels.

Graph Print

This command will print hard copy of the current graph on your printer, assuming that it is capable of producing graphics and is supported by the Preferences printer driver.

ANALYZE! works with the Preferences drivers on this function, so your printer MUST be among those supported (or compatible) for this to work. **ANALYZE!** provides Preferences with a color map of the graph, so if the driver supports color for your printer, that's how you should see it. Black and white printers will print the graph in gray scales.

The size of the graph window will determine the size of the graph on the paper. You may wish to experiment a little with this, especially if you plan on mixing graphs and text together (for use with letterhead stationary, etc.).

CHAPTER 5

THE ANALYZE! MACRO LANGUAGE

INTRODUCTION

Macros are used to help you automate your worksheet. Commonly performed functions can be reduced to a single keystroke. Custom menus can be prepared for persons who may not be totally familiar with your worksheet's operation.

Macros can execute simple or a complex series of keystrokes, saving you time by allowing you to think about your work, instead of how to operate your worksheet.

WHAT IS A MACRO?

A macro is made up of keystrokes which would normally be entered from the keyboard. Special macro keys and macro commands are available to extend the flexibility of your worksheet. These will be discussed in detail later in this chapter.

CREATING A MACRO

We'll use the SALES.SHT you've been practicing with to demonstrate some of the more common uses for macros. If SALES.SHT is not loaded into **ANALYZE!**, please do so now.

The first macro we'll create will be used to sort the sales figures alphabetically by city name. Move the cell pointer to cell J1 by pressing the <F5> function key and entering the cell address, or using the mouse or arrow keys to accomplish the same thing. It is always a good idea to keep your macros apart from the actual worksheet so as to avoid moving the macros at a later date because they

are in the way of your data.

With the cell pointer at cell J1, enter the following:

'/sda2..f5 ~

and press the <RETURN> key. The apostrophe must be used, otherwise ANALYZE! would start processing the macro as a keyboard command; macros are always entered as labels.

Let's explain what was just entered to help you understand how the macro language is interpreted by **ANALYZE!**.

The apostrophe was entered first since the second keystroke was the forward slash " / " which **ANALYZE!** always interprets as a keyboard command.

The "s" selects the Sort menu.

The "d" selects the Data-Range command.

The Data-Range selection prompts for the cell range "a2..f5" as the range that will be included in the sort.

The " ~ " is a tilde and is always used when an **ANALYZE!** prompt must be terminated by pressing the <RETURN> key.

If you eliminate the apostrophe and substitute the tilde for the <RETURN> key, those same commands are identical to what you would have entered from the keyboard. This makes creating your macros much easier, just write down the keystrokes as you normally enter them to aid you in creating your own macros.

The example given above was only part of the macro. While useful in itself, there is more we can add to make it more powerful.

At cell address J2, enter the following:

'/spa2 ~ ~

and press the <RETURN> key. As you can see from the above cell entry, this entry will select the Sort menu, select column A as the Primary-Key sort column and sort the data in ascending order.

You may be wondering why we didn't combine both cell entries into one, instead of creating two separate entries.

While macros can be up to 240 characters in length, splitting them up into logical, separate cell entries, allows them to be understood and edited more easily than if we had one very long complicated macro. When a macro is executed, it will continue searching down the column for further macro commands until it encounters a blank cell, at which point the macro will terminate. By entering macro commands vertically, you are allowing enough room to place the comments needed to explain your macro.

The macro we've defined so far will select the proper sort data range, primary-key column and order of sorting. The next step will be to initiate the sort, using the defined data ranges and sort order entered previously. Please enter the following at cell address J3:

'/sg

and press the <RETURN> key. That almost completes the macro, the range will automatically be sorted. At cell address L1, enter the following label:

sorts by city name

and press the <RETURN> key. This label is used to identify the macro, should you need to modify the macro in the future. While an identifying label is not required, it is recommended.

NAMING A MACRO

Up to 27 macros can be defined, each macro name can is one character in length. ANALYZE! uses the letters of the alphabet (A-Z) for the macro names and character case does not matter. In addition, a special auto executing macro is supported. Any macro with the name "0" will be executed as soon as the worksheet is loaded into **ANALYZE!**.

Naming a macro is accomplished by naming a range and defining the first cell entry for the macro as the range that the name references. In cell I1, enter the following label:

'\a

and press the <RETURN> key. The apostrophe was entered to avoid having the entire cell filled with the letter "a". This label serves a two-fold purpose. It not only helps to identify where a particular macro begins, it also serves as a reference point for naming and creating the macro.

With the cell pointer at cell address I1, select Range Name Right by pressing "/RNR" from the keyboard. The following prompt will appear:

Enter range: (current address)

If the current address is I1, press the <RETURN> key. If the current address is not I1, enter I1 and press the <RETURN> key.

The Range Name Right command automatically enters the cell range as one column to the right of where the current cell pointer is or the current address entered at the prompt. Since the cell address was entered as I1, the data range will be entered as J1, which is where the macro will begin.

That same macro could have been defined by using the Range Name Create function, but by using Range Name Right, the Range Name is automatically entered for you. If you use the Range Name Create function, enter the range name as either "\A" or "\a", character case does not matter. **ANALYZE!** will execute the macro regardless of which way you enter the macro name.

EXECUTING A MACRO

Macros can be executed in one of two ways. This section covers execution of macros as <ALT>-x commands, where "x" is the macro name, either a letter from "A-Z" or the number "0". Another way is through the creation of custom macro menus, which is covered in the next section.

To execute your new macro, press an <ALT>-A from the keyboard. Notice how the menu items are automatically selected, with no input from you at all. See how useful macros are?

Everytime you press an <ALT>-A, your data will be sorted by city name. Should you add more cities to the worksheet, just adjust the macro accordingly. Once the macro has been named, you can make whatever changes are necessary, as long as the macro is not moved. If you move a macro, the range name will not be able to locate the macro. This means you will need to re-define the macro names anytime a macro changes position. It is for this reason macros should be located away from the body of your worksheet.

To stop the execution of a macro, press a <CTRL>-C. A requester with the message "CTRL-C abort !!" will appear. Select the Resume gadget with the mouse pointer (KS 1.2 users can press any key) to continue. The macro will halt at the last menu item or function when it was terminated. Press the <ESC> key to return to the READY mode.

These next macros are other examples that you may find useful for

this particular worksheet. Please enter them as follows:

At cell address J5, enter the following:

'/sda2..f5 ~

and press the <RETURN> key. Notice that we left a blank cell between macro \a and the new macro. Without that blank cell, macro \a would continue executing commands that were defined for another macro.

At cell address J6, enter the following:

'/spf2 ~ ~

and press the <RETURN> key.

At cell address J7, enter:

'/sg

and press the <RETURN> key.

If you're familiar with the keyboard commands, you can see that this macro performs the same function as the previous macro, only it will sort the data using column "F" as the Primary-Key, which of course will sort the sales figures using the YTD totals.

Let's create a macro comment at cell address L5. Please enter:

sorts by ytd totals

and press the <RETURN> key. The last step is to create the macro's range name. Since we've already used "A", let's use the next letter in the alphabet. Place the cell pointer at cell address I5 and enter the following:

'\b

and press the <RETURN> key. Now select Range Name Right by entering "/RNR". When the prompt appears, press the <RETURN> key.

You have just created two useful macros. One to sort your sales figures alphabetically by city name and another to sort the sales figures by YTD totals.

At this time, please try both of these macros. When you have finished, we'll enter two more macros. The first will format the monthly sales figures for each city using the currency format and the other will reset the monthly sales figures to the general format.

At cell address J9 (notice the blank cell between the macros) enter:

'/rfc ~b2..e5 ~

and press the <RETURN> key.

At cell address L9, enter the macro label:

formats monthly figures using currency

and press the <RETURN> key. The next step is to name the macro; enter the following label with the cell pointer at cell I9:

'\c

and press the <RETURN> key. From the keyboard, enter Range Name Right by pressing "/RNR". When the enter range prompt appears, press the <RETURN> key.

That takes care of another macro. Everytime you press an <ALT>-C, the monthly sales figures will display using the currency format.

Enter one more macro before we move on. At cell J11 please type:

'/rfrb2..e5 ~

and press the <RETURN> key. At cell address L11 enter the macro label:

resets monthly figures to general format

and press the <RETURN> key. Now we'll name the macro. Move the cell pointer to address I11 and enter the following macro name:

'\d

and press the <RETURN> key. Now select Range Name Right by pressing "/RNR" from the keyboard. When the enter range prompt appears, press the <RETURN> key.

Practice with each of the four macros you have entered. Notice how much time you have saved by allowing **ANALYZE!** to perform repetitive tasks that you would normally have to re-enter each time you wished a function performed.

While having macros available is quite useful, sometimes it can be confusing if you forget which macro performed which function. Wouldn't it be nice to be able to create your own menus?

CREATING MACRO MENUS

ANALYZE! supports macro commands that allow you to create your own menus. These menu items will appear at the top of the window where the **ANALYZE!** menu items normally appear when entering commands from the keyboard.

Let's create a menu for the four macros we've entered so far. At cell J13, please enter the following:

{menubranch main}

and press the <RETURN> key. A couple of points need to be mentioned here. Macros are not always made up of commands that can be entered from the keyboard. **ANALYZE!** offers many special functions called macro keys and macro commands. These special macro functions are always surrounded by braces "{ }". While these commands will be covered further in this chapter, we'll briefly explain the function of the macro command just entered.

The macro command "{menubranch main}" is a special branch command that tells ANALYZE! to look at the macro called "MAIN" to display a menu. While macros are normally executed from the keyboard, the macro command, "menubranch", is used to branch to another macro and look at it in a special way.

To execute the "{menubranch main}" command, we need to define it as a macro command. Place the cell pointer at I13 and enter the following macro identifier:

'\m

and press the <RETURN> key. Now select Range Name Right by pressing "/RNR" from the keyboard. When the enter range prompt appears, press the <RETURN> key. From this point on, anytime you press an <ALT>-M, a menu will appear — but not yet.

The "{menubranch main}" macro command will execute a macro with the range name of "MAIN". Our next step will be to create that menu.

At cell J15, enter the following menu item:

Name

and press the <RETURN> key. "Name" will be the menu item. While it is useful to have a name for the menu item, an explanation

of what the function does would be even more helpful.

At cell J16, enter the following menu item description:

Sorts by city name

and press the <RETURN> key. That description will appear whenever that menu item is highlighted after executing the menu macro.

The next entry will be the actual function that the menu item will execute. At cell J17, enter the following menu command:

{branch \a}

and press the <RETURN> key. The "{branch}" command tells **ANALYZE!** to execute the macro with the name "\a".

Now we'll create more menu items that will appear in the same window when the "\m" macro is executed. When using a "{menubranch}" macro command, **ANALYZE!** looks horizontally down the row, displaying up to 12 menu items, or until a blank cell is encountered. This means that as many menu items as will appear in the **ANALYZE!** window can be defined and used.

At cell K15, enter:

YTD

and press the <RETURN> key. That is our second menu item. Now at cell K16 enter the description:

Sorts by city's YTD totals

and press the <RETURN> key. Notice that the description from the previous menu item was chopped off when the second one was entered. **ANALYZE!** allows cells to 'borrow' space from another

cell unless that cell has data in it. By increasing the column width, you can display the entire contents of the cell. For the example, it is not necessary. Now we'll complete this menu item by entering the function it is to perform. At cell K17, please enter the following:

{branch \b}

and press the <RETURN> key. Macro "\b" will be executed whenever this menu item is selected. Now we'll enter the third and fourth. At cell L15, please enter:

Currency

and press the <RETURN> key. At cell L16, enter the following menu description:

Formats monthly sales figures in currency format

and press the <RETURN> key. At cell L17, enter the menu item function:

{branch \c}

and press the <RETURN> key. One more menu item to go. At cell M15, enter the menu item:

Reset

and press the <RETURN> key. Now enter the following item description at cell M16:

Resets monthly sales in general format

and press the <RETURN> key. At cell M17, enter the menu item function:

{branch \d}

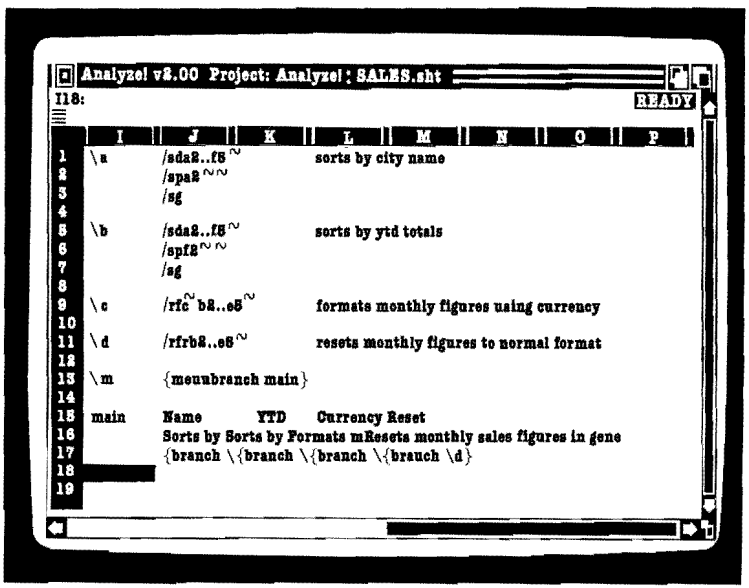
and press the <RETURN> key. The last step is to define these menu items under the range name of "MAIN", which "{menubranch}" will execute when the "\m" macro is executed.

At cell I15, enter the label:

main

and press the <RETURN> key. With the cell pointer still at that address, select Range Name Right by pressing "/RNR" from the keyboard. When the enter range prompt appears, press the <RETURN> key.

We've just completed a fully working macro selection for your worksheet and it should appear something like this:

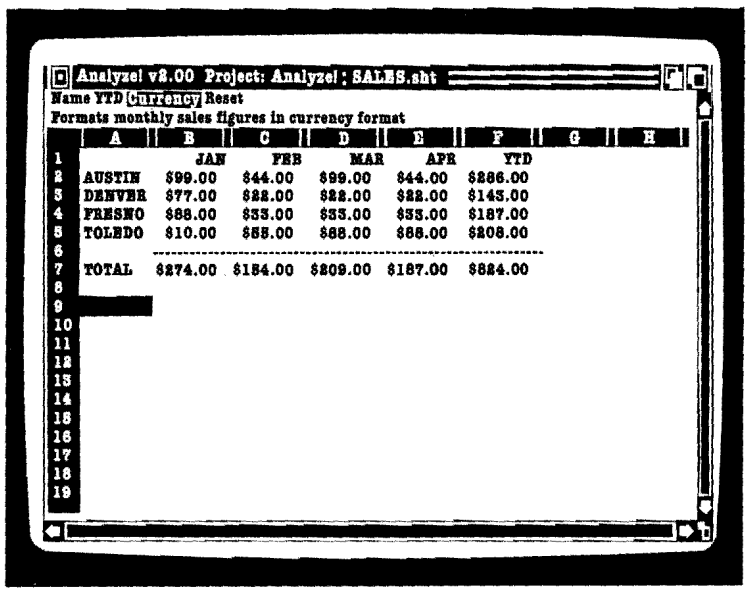


Not only can you select the individual macros by pressing an <ALT>-x key, you can group macros under your own customized menus.

To demonstrate how your new macro menu works, press an <ALT> up-arrow key to move the cell pointer to cell A1.

Now press the <ALT>-M key to execute the "\m" macro which executes the customized menu you created. Notice how the "Name" menu item is highlighted. Select it now by pressing "N" from the keyboard or pressing the <RETURN> key.

Your SALES.SHT should have been sorted by city name. Press the right arrow key twice or the TAB key twice to move the highlight bar down the menu. Your menu should look similar to the following:



The menus you create will work identically to the ones built into **ANALYZE!**. For that reason, do not create two menu item names that begin with the same letter. This allows you to press the corresponding letters from the keyboard without having to highlight the individual menu items.

With this rule in mind, there is no reason why you cannot create menus that run several levels deep by substituting the "{branch \x}" macro command with one similar to the following:

{menubranch second}

Of course, if you're going to execute a secondary menu, please create it. Anytime a macro tries to execute another macro (this is called a sub-routine and will be explained later) and that macro does not exist, a "Range name undefined !!" requester will appear. The same requester may also appear if a macro command or macro key is entered improperly.

By changing the "\m" macro to a "\0", **ANALYZE!** will execute your custom macro menu everytime it is loaded from your disk. To change a macro name, select Range Name Delete and press the <RETURN> key, change the macro identifier, then select Range Name Right to re-define the range using the new range name.

Now that you have an idea of how powerful and useful macros are, the next two sections will cover the macros available with **ANALYZE!** and their functions.

MACRO KEYS

Macro keys are substitute commands for **ANALYZE!** arrow keys, function keys and editing commands, like backspace, delete, etc..

The cell pointer macro keys are defined as follows:

Macro Key	Description
{down}	Moves the cell pointer down one row.
{up}	Moves the cell pointer up one row.
{left}	Moves the cell pointer one column to the left.

{right}	Moves the cell pointer one column to the right.
{home}	Moves the cell pointer to the first cell in the worksheet that allows data to be entered. Usually A1, but the use of titles could change that.
{end}	Moves the cell pointer to the last cell in the worksheet that has been used for data.
{pgup}	Moves cell pointer one full window up.
{pgdn}	Moves cell pointer one full window down.
{bigleft}	Moves cell pointer one full window to the left.
{bigright}	Moves cell pointer one full window to the right.

The function key macro commands are:

Macro Key	**Description**
{help}	Displays the help requester.
{edit}	Edits a cell's contents. Identical to the <F2> function key.
{name}	Displays the Range Name requester when **ANALYZE!** is prompting you for a range name. Identical to the <F3> function key.
{abs}	Toggles a cell range between relative and absolute values. This works only in the POINT mode and is identical to the <F4> function key.
{goto}	Moves cell pointer directly to a specific cell address. You can optionally enter the cell address as part of the macro command as follows: {goto}g14~ automatically places the cell pointer at cell G14. The same as the <F5> function key.
{window}	Toggles ANALYZE! from one side of the worksheet window to the other. The same as the <F6> function key.

{print}	Prints the worksheet using the defined Print Menu options. This works the same as the <F7> function key.
{store} or **{save}**	Stores the current worksheet only if the worksheet has been named. Either {store} or {save} will work correctly. Identical to the <F8> function key.
{calc}	Recalculates the entire spreadsheet, or a single cell if in the EDIT mode. The same as the <F9> function key.
{graph}	Views the currently defined graphs. Same as the <F10> function key.
{step}	This last macro command is used to help you find problems with your macros and is the same as the SHIFT-<F1> key.

When a macro encounters this command a status indicator is toggled on and will appear at the top of the **ANALYZE!** window with the word "STEP". As long as the STEP indicator is displayed, all macros will execute one step at a time, waiting for you to press the <RETURN> key before continuing with the next macro entry.

To turn the {step} mode off, place another {step} command in the macro. This is good practice, otherwise everytime you run a macro containing a single {step} command, the first time it executes the macro it will be in the STEP mode and the next time it will toggle the STEP mode off.

While in the STEP mode, macro entries are processed in two different ways. Commands not surrounded by braces will execute one character at a time, while macro commands and macro keys that have to be surrounded by braces will execute the commands contained within the braces before requiring the operator to press the <RETURN> key. For example:

```
\a          {step}/sda2..f5
            /spf2~~
            /sg{step}
```

would cause the example macro created in the tutorial section to execute each macro entry one at a time. When run, you will need to press the <RETURN> key as the first macro entry is the forward slash which is used to bring up the **ANALYZE!** menus. Then the next step will select the Sort menu, the one after that will select Data-Range and so on. Please try this with the test macros created, it will help to make you familiar with correcting incorrect macro entries. Remember, to halt execution of a macro at anytime, press a <CTRL>-C.

The last macro keys are commands that are normally used in the EDIT mode. They are:

Macro Key	Description
{**escape**} or {**esc**}	The ESCAPE key.
{**backspace**} or {**bs**}	The BACKSPACE key.
{**delete**} or {**del**}	The DELETE key.
{~}	Have the tilde appear as ~
{{} and {}}	Have the braces appear as { and }.

All the above Macro Key commands will function the same as if you had entered them from the keyboard. You may wish to take some time to familiarize yourself with these commands by creating a test macro and executing each one of these commands individually or in combination with others to see how they perform.

MACRO COMMANDS

This last section deals primarily with special macro commands that perform specific functions when using macros. It is these commands that give macros the ability to interact with the operator and the

spreadsheet. These commands are:

{?}

Halts macro execution until the <RETURN> key is pressed. Allows you to enter data into the worksheet while the macro is waiting for the <RETURN> key. Here is an example:

\g {graph}{?}{calc}

This example would view the graphs, allow you to make changes to the worksheet until the <RETURN> key as pressed and then the macro would continue, recalculating the worksheet. Please note that this macro command IS NOT a substitute for the tilde character and if a macro requires a tilde character, you will still have to enter it.

{beep Hz**}**

Sounds a tone from the computer. This commands accepts a number or formula where the result is in Hz for the frequency of the tone. The default is 500 and would appear as: {beep 500} or {beep 2500}.

{branch location**}**

This macro continues executing the macro at another location, generally a range name, but can be a specific cell address. Any macro commands past the {branch} will be ignored as all control is passed to the new location. For example:

\a {branch main}

main {branch \c}

{getlabel prompt-string, location**}**

This macro prompts the operator for a label and places it at the range or cell address specified by "location". The entered label will be left justified in the cell address. For example:

getname **{getlabel "Please enter your FIRST name: ", a15}**

When this macro is executed, the enter name prompt will appear at the top of the **ANALYZE!** window. When the information is entered by the operator it is placed in cell A15. Please surround the prompt-string in quotes whenever the string contains a comma (,) or a semi-colon (;).

{**getnumber** prompt-string, location}

This macro performs exactly as {getlabel}, except the input must be a number. Since {getnumber} does not check to make sure the input is a number, any labels entered are automatically converted to a "0" value and placed in the cell address specified by "location". For example:

age **{getnumber "How old are you? ", a20}**

This macro would execute whenever the macro routine named "age" is executed. The operator would be prompted for their age and the result would be placed at cell address A20.

{**if** condition}

This macro command is one of the more powerful that you will come to rely on. With it, you can specify conditions under which a macro can continue. For example:

totals **{if @sum(a1..a16) < 85}{branch re-enter}**
{branch continue}

The above macro would check the totals of cells a1..a16 and check to see if the result was less than 85. If the result is less than 85, the

macro would branch to the routine called "re-enter".

If the result is 85 or greater, the macro will skip past the {branch re-enter} command (and any others that existed on that same line) and continue execution of the macro by performing the {branch continue} command.

The important thing to remember is if the conditions of the {if} macro are met, macro execution will continue with the macro commands that appear to the right of the {if} command. Otherwise, execution continues with any macros below that cell until a blank cell is encountered.

Two sets of numbers can be tested with the {if} macro. For example:

```
match     {if @sum(a1..a16) < 85}{if a17=96}{branch continue}
          {branch re-enter}
```

This example is similar to the one above except it not only checks to see if the result of the @sum function is less than 85, it also checks to see if the number in cell a17 is 96.

{**let** location, value/string}

This macro allows you automatically place a value or a string at a location. For example, enter:

```
    H          I
8  delay     {let j8,0}
9            {let j8,j8+1}{if j8=50}{return}
10           {branch i9}
```

This is a perfect example for placing a delay in a macro. The {let} command initially sets cell J8 to zero then continually adds 1 to cell J8 until it equals 50. If it equals 50, the macro returns to where the {branch delay} command was executed. The {return} command is

covered fully a little later in this chapter.

The {let} macro allows an optional parameter after the value or string that determines whether the contents of the cell should be entered as a value or a label. The default paramter is a ":value", but if a ":string" is substituted, the numbers that would have normally been entered in the cells would have been entered as labels. For example:

```
      H          I
8     test       {let h10,2*235:string}
9
10    2*235
```

The above example starts with a number, but if you want it displayed as a formula instead of performing the calculations, add the ":string" parameter.

{**menubranch** location}

This macro was discussed briefly in the tutorial section at the beginning of this chapter.

The {menubranch} macro is used whenever you wish to create a custom menu for your macros. The "location" can be a cell address or a range name. If the location is a range name, the macro will start executing at the first cell in the defined range. The first item at the menubranch location is the menu item's name. The cell below it contains the description of the menu item. In the cell below the description is the macro command to be executed. By using more than one {menubranch} command, you can create menus several levels deep. For example:

```
main-menu   Sort
            Sorting options
            {menubranch sort-menu}
```

would have as part of your customized main-menu an option to take you to another menu using the named range "sort-menu". If you did not wish to have a secondary {menubranch} performed, substitute the macro commands you wished executed, or enter the appropriate {branch} command.

{quit}

This macro command halts macro execution at that point and returns control of the system to the operator. It may be useful in some instances when using {if} macro commands or when you want to quit from a custom macro menu. This command requires no parameters and is used as follows:

menu	Name	YTD	Currency	Reset	Quit
	Desc.	Desc.	Desc.	Desc.	Exit menu
	{command}	{command}	{command}	{command}	{quit}

{return}

This macro command is used to terminate a macro sub-routine and return control back to where the sub-routine was executed. A sub-routine is a set of macro commands that any other macro can branch to temporarily and then return to complete the main macro.

Take the "delay" macro given as an example with the {let} macro command. If more than one macro would need a delay, it makes more sense to use a sub-routine than to duplicate macro commands several times. Take the following example:

	A	H	I
8	/sg{delay}	delay	{let j8,0}
9	{branch \b}		{let j8,j8+1}{if j8=50}{return}
10			{branch i9}

the macro at cell A8 performs a Sort Go and then executes the {delay} sub-routine. When the sub-routine has completed it's func-

tion, control is returned to the macro that originally executed it, where it then performs a {branch \b}.

Sub-routine names need to be placed in braces. If a sub-routine is executed that does not exist, a "Range name undefined !!" requester will appear.

{**say** string}

This macro uses the AmigaDOS narrator device to allow your worksheet to talk to the operator. For example:

error **{say Improper response}{return}**

would cause **ANALYZE!** to audibly warn the operator that improper input was entered.

CHAPTER 6

THE ANALYZE! BUILT-IN FUNCTIONS

THE BUILT-IN FUNCTIONS

In addition to the commands in its menu structure, **ANALYZE!** has many powerful built-in functions and capabilities. Since they are prefixed with the "@" symbol, we call them "at" functions.

SPECIAL FORMULA FUNCTIONS (@functions)

You can perform a number of sophisticated mathematical functions within the context of a spreadsheet formula using the following @functions (pronounced "at functions"). These built-in formulas make it easy to use **ANALYZE!** for complex and sophisticated business and mathematical modeling.

@ABS(x) **Absolute Value of (x)**

@ABS(3.44) = 3.44
@ABS(-4.7) = 4.7
@ABS(A1) =Absolute Value of the contents in cell A1

@ACOS(x) **Arc Cosine of (x)**

Where the angle in radians whose cosine is (x). If (x) is not between -1 and +1, the value is ERROR. The value of the ACOS function is always between 0 and PI.

@ACOS(-1) = 3.141592 (radians)
@ACOS(A1) = Arc Cosine of the contents in cell A1

@ASIN(x) Arc Sine of (x)

The function yields the Arc Sine of (x), the angle in radians whose sine is (x). If the value of (x) is not between -1 and +1, the value is ERROR. The value of the function always falls between -PI/2 and +PI/2.

@ASIN(-1) = -1.570796 (radians)
@ASIN(A1) = Arc Sine of the contents in cell A1

@ATAN(x) Arc Tangent (2 quadrant) of (x)

The value of Arc Tangent (x), the angle in radians whose tangent is (x). Value falls between -PI/2 and +PI/2.

@ATAN(-3) = -1.249045 (radians)
@ATAN(A1) = Arc Tangent of the contents in cell A1

@ATAN2(y,x) Arc Tangent (4 quadrant) of (y,x)

The value of Arc Tangent of (y/x), the angle in radians whose tangent is (y/x). The signs of (y) and (x) are considered separately producing values for all 4 quadrants, between -PI and PI. If (x) = (y) = 0, then the value is ERROR.

@ATAN2(3,2) = 0.982793 (radians)
@ATAN2(A1,B1) = Arc Tangent of the result from the contents in cell B1 divided by the contents in cell A1.

@AVG(list) **Averages the values of all items within a list.**

The system averages all items in a list by totaling the values and dividing them by the number of items.

	A	B	C
1	23.1		
2	0.34		
3	100.064		

@AVG(A1..A3) = 41.16666

Since this is a list function, any number of individual items or range of items can be entered, as long as each is separated by a comma. For example:

@AVG(A1..A3,B5,NAMED_RANGE,E5..E8) is perfectly acceptable.

@CHOOSE(a,list) **Select argument value**

You can perform short table lookups with the @CHOOSE function. @CHOOSE selects and returns an argument based upon the first argument. The first argument, (a), is turned into an integer. If this integer is less than 0 or greater than (n), the function yields ERROR. Otherwise, the value of the function is the appropriate item in the list.

@CHOOSE(3,23,11,6.8,1.17) = 1.17

Since this is a list function, any number of individual items or range of items can be entered, as long as each is separated by a comma. For example:

@CHOOSE(5,A1..A3,B5,NAMED_RANGE,E5..E8) is perfectly acceptable.

@COS(x) Cosine

The Cosine of (x), where (x) is an angle in radians.

@COS(-3) = -0.989992
@COS(A1) = Cosine of the cell A1

@COUNT(list) Counts the number of items within a list.

The @COUNT function returns the number of items in a range. Single value arguments are a number or cell address, each separated by a comma and counted as one each.

If a range is specified, the value returned is the number of cells that contain a value. If single cell addresses are specified, the result will be the number of cell address contained in the list.

	A	B	C
1	23.1	456.9	
2	0.34		
3	100.06	1122.334	
4			

@COUNT(A1..A3) = 3
@COUNT(A1..B3) = 5
@COUNT(B2) = 1

Since this is a list function, any number of individual items or range of items can be entered, as long as each is separated by a comma. For example:

@COUNT(A1..A3,B5,NAMED_RANGE,E5..E8) is perfectly acceptable.

@DATE(YY,MM,DD) Date expressed serially (1-1-1900 = 1)

The @DATE function permits date arithmetic supporting leap years. The date 1-1-1900 has been assigned the number 1, 1-2- 1900 is 2, and so forth. Counting serially for the next 100 years, including 25 leap years, yields 12-31-99 = 36525. The @DATE function works only between 12-31-1899 = 0 and 12-31- 2099 = 73049. You can display a serial date in normal date format using the Global format commands within the Worksheet menu.

@DATE(48,11,8) = 17844

@DAY(date) **Day number**

@DAY converts a serial date and extracts day of the month (See @Date, above).

@DAY(17844) = 8

@DEG(x) **Degree to Radian**

@ERR **The value ERROR**

The value of @ERR is ERROR. This function is useful in creating forced errors in lookup tables.

@EXP(x) **Exponential notation**

(e) raised to the (x) power.

@EXP(1.02) = 2.773194
@EXP(A1) = (e) raised to the power of the contents in cell A1

@FALSE **The value 0 (False)**

The value of the function is 0.

@FRAC(x) **Fractional part of (x)**

@FRAC returns the fractional part of (x)

@FRAC(4.5) = 0.5
@FRAC(A1) = the fractional portion of the contents in cell A1

@FV(pmt,int,n) **Future Value**

The future value of an annuity can be automatically calculated given: payment per period, interest rate per payment period and n (number of periods). The calculation is performed according to the formula:

$$FV = payment * \frac{(1 + interest)^{n} - 1}{interest}$$

	A	B	C
1	Payment	6000	
2	Interest	0.08	
3	Periods (n)	24	

@FV(6000,.08,24) = 400588.5
@FV(B1,B2,B3) = 400588.5

@HLOOKUP(x,range,compare) **Table lookup (Horizontal)**

A horizontal lookup table compares the values in the first row of a range with a defined number of additional rows. The comparison

values must be in ascending order (no duplications). If an exact match is not found, the closest value that does not exceed (x) will be used. The result is the first value in the comparison range which exceeds the test value (x). ERR results if it is the first cell in the range. The compare argument specifies how many rows below the comparison row to look.

	A	B	C
1	0.4876	1	1.0987
2	2.8	3.14	67.9
3	7.9	8.1	8.2

@HLOOKUP(1,A1..C4,2) = 8.1

@IF(a,vtrue,vfalse) The value (n) if condition is True

@IF tests for TRUE (non-zero) or FALSE (zero). The value is vtrue or vfalse.

	A	B	C	D	E
1	3	2	22	72	

@IF(A1>B1,B2/B3,0)

When A1=3 the result is 3.142857.
When A1=1 the result is 0.0.

@INT(x) Integer part

@INT returns the integer portion of the value (x).

@INT(3.14) = 3
@INT(A1) = returns the integer portion of the contents in cell A1

@ISERR(x) The value -1 (True) if expression (n) = ERR

The value is -1.0 (TRUE) if (x) = ERR, or 0.0 (FALSE) if (x) equals anything else.

@LN(x) Log base (e)

The natural logarithm of (x). If (x) is negative or zero, the value is ERR.

@LN(1.2) = 0.182321

@LOG(x) Log base 10

Same as above, but returns the logarithm base ten.

@MAX(list) Maximum value of all items in a list

@MAX returns the greatest value from a specified list. If no values are present, the result is ERR, blank cells in a range are ignored.

	A	B	C
1	LIST ONE		
2	23.567		
3	0.02		
4	24.0		
5	0.987		
6	12.89		

@MAX(A2..A4) = 24.0

Since this is a list function, any number of individual items or range of items can be entered, as long as each is separated by a comma. For example:

@MAX(A1..A3,B5,NAMED__RANGE,E5..E8) is perfectly acceptable.

@MIN(list) Minimum value of all items in a list

@MIN returns the smallest value from a specified list. If no values are present, the result is ERR, blank cells in a range are ignored.

	A	B	C
1	LIST TWO		
2	23.567		
3	0.02		
4	24.0		
5	0.987		
6	12.89		

@MIN(A2..A6) = 0.02

Since this is a list function, any number of individual items or range of items can be entered, as long as each is separated by a comma. For example:

@MIN(A1..A3,B5,NAMED__RANGE,E5..E8) is perfectly acceptable.

@MOD(a,b) (a) mod (b)

The modulus or remainder of (a) divided by (b). According to the calculation:

a - (b * @INT(a/b))

@MOD(8,4) = 0.0

@MONTH(date) Month number

@MONTH converts a serial date and extracts the month (See @Date, above).

@MONTH(17844) = 11

@NPV(x,range) Net Present Value

This function yields the present value of a series of future cash flows. The series must be in a single column or row, (x) represents the per period interest rate. The first cash flow is assumed to exist at the end of the first period with subsequent cash flow at the end of the next sequential periods.

Assumed : $V_1 \ldots V_n$ are values in range, then:

$$NVP = \sum_{i=1}^{n} \frac{V_i}{(1+x)^i}$$

IF:
- INITIAL = Single cash flow
- SERIES = Range of future flows
- RATE = per period interest rate

THEN: INITIAL + @NPV(RATE,SERIES)

@PI PI (3.141592653589794)

No argument accompanies @PI.

@PI = 3.141592653589794

@PMT(prin,int,n) Payment

The payment is calculated for an ordinary annuity if (prin)cipal, (int)erest rate, and (n)umber of periods, you know according to the following formula:

$$PMT = principal * \frac{interest}{1 - (1 + interest)^{-n}}$$

	A	B	C
1	Principal	6000	
2	Interest	0.14	
3	Term (n)	12	

@PMT(6000,.14,12) = 1060.015
@PMT(B1,B2,B3) = 1060.015

@PV(pmt,int,term) Present Value

The Present Value of an ordinary annuity is calculated when payment, interest, and term, are known according to the following formula:

$$PV = payment * \frac{1 - (1 + interest)^{-n}}{interest}$$

	A	B	C
1	Payment	600	
2	Interest	0.14	
3	Term (n)	12	
4			

@PV(600,.14,12) = 3396.175
@PV(B1,B2,B3) = 3396.175

@RAD(x) Degree to Radian conversion

@RAD returns a radius, where (x) = degree.

@RAND(x) Random number (1-0)

The @RAND function takes no argument. It returns a random number between 0.0 and 1.0.

@ROUND(x,ndigits) Round a number

The @ROUND function rounds (x) to the number of digits specified (ndigits). ndigits is converted to an integer and must be between -15 and +15. If zero, (x) is rounded to an integer.

@SIN(x) Sine

The Sine of (x) is returned where (x) is considered to be an angle in radians.

@SIN(.3) = 0.29552

@SQRT(x) Square root

The @SQRT function calculates the square root of (x) unless (x) is less than zero; (x) must be a positive number.

@STD(list) Standard Deviation of all items in a list

@STD results in the standard deviation of the values in a list unless there are no items within the list, resulting in ERR. Blank cells are ignored.

@STD(A1...A6) = Standard deviation for specified list

Since this is a list function, any number of individual items or range of items can be entered, as long as each is separated by a comma. For example:

@STD(A1..A3,B5,NAMED_RANGE,E5..E8) is perfectly acceptable.

@SUM(list) Totals the values of all items in a list

The @SUM function results in the sum of cells in a list.

```
      A        B        C
1      13.09
2     112.01
3       2.09
4  ------------
5     127.19
```

@SUM(A1..A3) = 127.19

Since this is a list function, any number of individual items or range of items can be entered, as long as each is separated by a comma. For example:

@SUM(A1..A3,B5,NAMED_RANGE,E5..E8) is perfectly acceptable.

@TAN(x) Tangent

The @TAN function calculates the tangent of (x) when (x) is expressed as an angle in radians.

@TAN(1.2) = 2.572151

@TODAY(date) Today's date

The @TODAY converts today's date to serial format for inclusion in date arithmetic calculations (See @DATE).

@TRUE The value non-zero (-1 = True)

@TRUE takes no argument. Its value is non-zero (-1).

@VAR(list) Variance of all items in a list

The @VAR function calculates the population variance of items in a specified list according to the following formula, where (n) = @COUNT (list) and each (x) = a list element.

$$\frac{n\sum x^2 - \left(\sum x\right)^2}{n^2}$$

@VLOOKUP(x,range,compare) Table Lookup (Vertical)

A vertical lookup table compares the values in the first column of a range with a defined number of additional columns. The comparison values must be in ascending order (no duplications). The result is the first value in the comparison range which exceeds the test value (x). ERR results if it is the first cell in the range. The compare argument specifies how many columns beyond the comparison column to look. (See @HLOOKUP.)

@YEAR(date) Year number

The @YEAR function extracts the calendar year from a specified serial date.

CHAPTER 7

THE ANALYZE! MENUS AND OPTIONS

OVERVIEW OF THE MENUS AND OPTIONS SECTION

This portion of the **ANALYZE!** manual describes the various menus, options and their keyboard command equivalents. Included is a list of the function key commands.

FUNCTION KEY COMMANDS

The following table lists the function key commands:

Key	Function
<F1>	Help menu.
<F2>	Switch to and from the Edit mode.
<F3>	Displays a table of currently defined range names when you are prompted to input a range. You may then use the mouse to select a range from this list.
<F4>	Changes the cell references in the current entry from relative references to absolute. Relative references change as they are copied or moved about the worksheet. Absolute references, shown with a dollar sign ($), never change.
<F5>	Go directly to a specific cell.

<F7> Prints worksheet using currently defined Print Range, borders, margins, etc.

<F8> Saves worksheet to disk. If the current worksheet is Untitled, a warning bell will sound. Allows you to quickly save changes made to the worksheet without having to select Worksheet Archive.

<F9> Recalculate the entire worksheet. (See the Recalculate menu description elsewhere in this chapter.)

<F10> Display the currently defined graphs. Up to four graphs can be viewed at one time.

NOTE: When in the edit mode, the <F9> key calculates any formula in the cell you are editing and displays the product of that formula. All longhand formulas (+A1+B1+C1) and @function formulas are replaced by their literal values and the formula is deleted. If you press the <F9> key by mistake, press the <ESC> key to return the formula to the cell. Do NOT press the <RETURN> key, or the formula will be permanently lost.

ANALYZE! COMMAND MENUS

Chapters 2 and 3 explain how to select the **ANALYZE!** command menus. If you have any confusion over how this is accomplished, please refer to them now. At the moment, we will concern ourselves only with documenting what the commands on the various menus actually do, making the assumption that you know how to select them.

USING THE KEYBOARD COMMANDS

All of **ANALYZE!**'s menu items are accessible through keyboard commands. All keyboard commands are preceded by a "/". Take the Copy command of the Range menu; its entry looks like this:

Range Copy (/RC)

What this notation means is you can also select this command by pressing the "/" key, followed by the "R" and "C" keys for Range Copy. This is a shortcut to using the mouse for menu item selections, and will speed up often used commands, especially for those of you who prefer the keyboard to the mouse.

THE WORKSHEET MENU

Use the Worksheet menu to load and save worksheets to disk, access the Global settings window, and exit the program. Use the commands on the Worksheet menu to control global settings (your current worksheet default values). The commands include the following:

Worksheet
Archive
Status
Erase
Insert
  Column
  Row
Delete
  Column
  Row
Column
  Global
  Set
  Reset
Titles
  Clear
  Horizontal
  Vertical
Format
  General

Fixed
Scientific
Currency
,
Percent
Text
+/-
Date
Label
Left
Center
Right
Protect
Disable
Enable
Quit

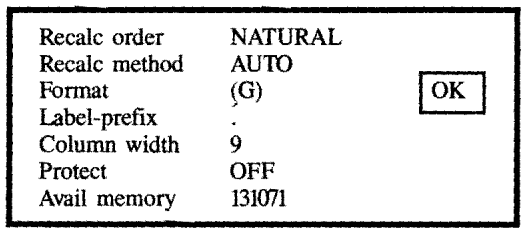
Worksheet Archive (/WA)

This command activates the Archive Requester, which is used to load and save worksheets. There is an Archive command under the Graph menu which is used to save ONLY the graph definitions for a particular worksheet or the picture of the graph.

Techniques for using the Archive Requester to save your worksheets are discussed in great detail in the Tutorial chapters. If you have any questions on how to use it, please refer there.

Worksheet Status (/WS)

This command displays the Global Settings Window. This pop-up window shows you all the current worksheet defaults, such as recalculation order and method, default column width and default label prefix.



You can select the "OK" gadget with the mouse pointer, or press any key on the keyboard (for users of KickStart 1.2) and the status window will disappear. The various options in the status window are changed from the Worksheet menu.

Worksheet Erase (/WE)

This command erases the entire worksheet. **ANALYZE!** asks you to verify your command selection. In this way, you are given a second chance to make sure you really want to erase your work. Once erased, the worksheet cannot be retrieved, unless you stored it in a file. A requester will then appear asking you for the amount of memory to partition for the next sheet. The last worksheet size will be the new default.

Worksheet Insert

You can insert a column or row into a worksheet. This can come in handy if you have a worksheet needing one more item inserted in the middle of the worksheet. With Worksheet Insert, there is no problem because when a column or row is inserted, the columns to the right or rows below automatically move over the appropriate number of columns or rows. Formulas are automatically updated to account for the new location of moved cells.

Worksheet Insert Column (/WIC)

To insert a column, place the cell pointer on the column you want to insert. Select Worksheet Insert Column. **ANALYZE!** then

prompts you to:

Enter range of columns to insert:

Press the <RETURN> key. If the cell pointer is not on the column you want to insert, either enter the address from that column and press the <RETURN> key or select a cell from that column with the mouse. You may specify a range of columns to insert multiple columns.

Worksheet Insert Row (/WIR)

To insert a row, place the cell pointer on the row you want to insert. Select Worksheet Insert Row. **ANALYZE!** then prompts you to:

Enter range of rows to insert:

Press the <RETURN> key. If the cell pointer is not on the row you want to insert, either enter any address from that row and press the <RETURN> key or select a cell from that row with the mouse. You can insert more than one row by entering a two-address range.

Worksheet Delete

The Worksheet Delete command lets you delete columns or rows from the worksheet. Note that while the data (values, formulas and labels) is erased, the actual column or row remains; only the data is erased. The data in columns to the right and rows below a deletion will automatically move up or over to fill in the erased column(s) or row(s). All formulas are automatically updated to account for the new location of formulas.

Worksheet Delete Column (/WDC)

To delete a column, place the cell pointer on the column you want

to delete. Select Worksheet Delete Column. **ANALYZE!** then prompts:

Enter range of columns to delete:

Press the <RETURN> key. If the cell pointer is not on the column you want to delete, enter any address from that column and press the <RETURN> key or select any cell from that column with the mouse. You may specify a range to delete a range of columns.

Worksheet Delete Row (/WDR)

To delete a row, place the cell pointer on the row you want to delete. Select Worksheet Delete Row. When you see:

Enter range of rows to delete:

Press the <RETURN> key. If the cell pointer is not on the row you want to delete, either enter any address from that row and press the <RETURN> key or select a cell from that row with the mouse. You can specify more than one row by entering a range.

Worksheet Column

Set the number of characters that fit into an individual column with this command. The default value is a width of nine characters for each column. You can set each column individually between 1 and 75 characters wide.

First, position the cell pointer anywhere in the column you want to adjust. Then use one of the sub-commands listed below. If you want to change all the columns in the worksheet, use Worksheet Column Global.

Worksheet Column Global (/WCG)

The global column width is the default width for all columns in the worksheet. Unless you specifically change a column, or change them all using this command, this is the defined cell width. Select Worksheet Column Global and you are prompted for the new column width. (The old width is shown as the default.) Enter the new value, press the <RETURN> key and **ANALYZE!** adjusts the columns.

Worksheet Column Set (/WCS)

When you select Set, you are asked to:

Enter column width (1..):x

(where x is the current width of the column holding the cell pointer). The number you enter (1-75) overwrites the current global default (9). Press the <RETURN> key to alter the column.

Worksheet Column Reset (/WCR)

This command restores the column currently holding the cell pointer to whatever the global setting is.

Worksheet Titles

A worksheet designed with rows and columns usually ends up with at least one row (or column) of titles. For example, the top row may indicate the months of the year and each column is titled JAN through DEC. In addtion, the first column might contain store numbers and the labels in column A title each row.

If you scroll beyond the last column displayed, the list of store numbers scrolls out of sight. Scrolling downward can mean that the months disappear. The solution is to lock the top row and first

column. That way, as the worksheet is scrolled, the titles stay put.

There are three titling options: horizontal OR vertical and horizontal AND vertical. To unlock them, a clear option is provided. When you select the Titles submenu, checkmarks are visible next to the option currently in effect. The current titles are saved when you Archive a worksheet.

Worksheet Titles Clear (/WTC)

The cell pointer can be located anywhere in the worksheet when the command is issued. Select Worksheet Titles Clear and all currently defined titles are unlocked.

Worksheet Titles Horizontal (/WTH)

All rows above the cursor are locked when this command is issued.

Worksheet Titles Vertical (/WTV)

All columns to the left of the cursor are locked when this command is issued. When both are checkmarked, it locks the column(s) and row(s) directly above and to the left of the cursor. Therefore to freeze row 1 and column A, place the cursor at cell B2 when you issue the command.

Worksheet Format

The Worksheet Format command offers a number of sub-commands used to adjust the appearance of all cells in the worksheet (The exception is cells containing labels, which are controlled by the Worksheet Label command).

When you select Worksheet Format, all formats set with the Range Format menu are over-ridden. You have to restore any that were important. The format you select here is applied to the entire worksheet immediately.

Worksheet Format General (/WFG)

The General format is the worksheet default. Unless you change the format, or override a specific range, this is the format used. The format is whole numbers with as many digits displayed as fit in the width of the column. Trailing zeros are suppressed.

Worksheet Format Fixed (/WFF)

This is the same as the General format except that you specify the number of decimal places displayed, between 0-14. When you select this format, you are first prompted for the number of decimal places, with 2 as the default. The actual number of decimal places that can be displayed depends on column width (for large numbers, make wider columns). This is the format to use if you do not want to suppress trailing zeros.

Worksheet Format Scientific (/WFS)

This displays numbers in scientific (exponential) notation. For example, 5 billion (5,000,000,000) would be 5.00E+9.

Worksheet Format Currency (/WFC)

This format is used to display monetary figures. The system first asks for the number of decimal places to show, with 2 as the suggested default. This format shows a dollar sign before each number, has a comma between thousands, and places any negative values in parentheses.

Worksheet Format , (/WF,)

This command places commas in large numbers to denote thousands. Note that a comma takes up space in a column. If a number is too large to be displayed, the column is filled with asterisks. This format is the same as Currency, but without the dollar signs.

Worksheet Format Percent (/WFP)

This format displays the value times 100, with a fixed number of decimal places, followed by a percent sign (%). For example, 0.8654 becomes 86.54%. Again, remember that the percent sign takes up cell space.

Worksheet Format +/- (/WF+)

As an alternative to displaying an actual value, you may use pluses and minuses to create a positive and negative bar graph of a column of numbers. Normally, you want to duplicate the column of numbers into the adjacent column first so that the actual values are displayed next to the graph. You also might want to scale the graph using a formula that smooths the differences between the highest and lowest values. Remember that the column width may have to be adjusted to display the graph in its entirety. Negative values are displayed with minuses (-), positive with pluses (+).

This format is sometimes called a horizontal pictograph.

Worksheet Format Text (/WFT)

The Text command displays a formula in the body of the worksheet. Remember that column width may have to be adjusted to display the whole formula.

Worksheet Format Date (/WFD)

In this special format, a positive number (rounded off to an integer) is considered to be the serial number, sometimes called a serial date, of a particular date. The number 1 is 01-Jan-1900, and 73049 is 31-Dec-2099. (You can generate these serial dates with the @DATE and @TODAY functions.)

These cells are displayed in the format DD-MMM-YY format. Years greater than 2000 will have a 1 prefixed in them. For example, 16-

JAN-86 and 02-FEB-102, are 01/16/1986 and 02/02/2002, respectively.

Worksheet Label

Making a worksheet visually attractive is important for more than aesthetic reasons. Especially in large worksheets, a neatly organized worksheet is easier to understand. It is possible to organize text labels in three ways within a given cell or over a range of cells. You can have cell labels centered, or displayed to the extreme right or left side of the cell.

Worksheet Label is to Range Label what Worksheet Format is to Range Format. It sets all the label cells in the sheet to whatever format you select, and it establishes the new default label format.

Worksheet Label Left (/WLL)

This places a label to the left side of a cell. You can do the same thing when you enter the label by preceding it with an apostrophe (').

Worksheet Label Center (/WLC)

Use Center to place a label in the center of a cell. You can do the same thing when you enter the label by preceding it with a caret (^).

Worksheet Label Right (/WLR)

Use this option to place a label to the right side of a cell. You can do the same thing when you enter a label by preceding it with double quotes (").

Worksheet Protect

Because it is so easy to change the contents of a cell, a protection

facility has been incorporated into **ANALYZE!**. It is possible to protect a cell or cell range from alteration or erasure.

The default is that cells in a worksheet are protected, but the master switch (Worksheet Protect) is off. Protection status is checked with the Worksheet Status command which shows the current defaults for a number of global settings. Protection is ON or OFF. To set protection ON, use the Worksheet Global Protect Enable command. Every cell is then protected and you can unprotect individual ranges.

Worksheet Protect Enable (/WPE)

This sub-command turns protection on for the entire worksheet. However, the Range Unprotect command can override the global setting for specified cells and ranges. Even empty cells are protected, so a cell must be unprotected to be used in any way except to have its contents read.

Worksheet Protect Disable (/WPD)

This sub-command turns protection off for the entire worksheet. Even cells protected individually are unprotected when protection is disabled, and no cells can be protected as long as this is the case.

Worksheet Quit (/WQ)

The Quit command exits **ANALYZE!** and returns to Workbench or CLI, depending on where you started **ANALYZE!**. The system prompts you to make sure that you have saved all your work. Be sure to do this, as there is no way to recover a worksheet that was not stored on disk when you exit the program.

THE RANGE MENU

Use the Range menu to perform an operation, such as Copy or Move, on a range of cells. A range of cells can be one cell or a

whole worksheet, depending on how you define the range. This menu also contains the Range Format commands, which you use to control the appearance of portions of the spreadsheet. The commands are:

Range
Copy
Move
Erase
Format
  Reset
  General
  Fixed
  Currency
  ,
  Percent
  Text
  +/-
  Date

Label
  Left
  Center
  Right
Style
  Plain
  Bold
  Underline
  Italic
Protect
  Disable
  Enable
Name
  Create
  Right
  Left

Below
Above
Delete
Erase

Range Copy (/RC)

You can copy individual cells or ranges from one location to another within a worksheet. Formulas can also be copied from one location to another. In the process, **ANALYZE!** alters the formulas to represent ranges within the destination range. For example, if a formula placed in column A totals figures in column A and is copied to column B, the copied formula totals figures in column B.

To copy a cell, place the cell pointer on the source cell. Select Range Copy. The input area displays:

Enter range to copy FROM: (Present Address)

If the cursor is on the source cell, press the <RETURN> key. Otherwise type in the source cell or point to it with the arrow keys or mouse. The input area now displays:

Enter range to copy TO:

At this point, you should type in the destination cell or point to it with the arrow keys or mouse. Remember, if you type the destination cell manually, you must press the <RETURN> key.

To copy a range of cells, select Range Copy. The input area displays the message:

Enter range to copy FROM: (Present Address)

Select the range you want to copy. To do this enter the upper left-hand cell of your source range, two periods, and the lower right-

hand cell. You can also use the point mode to enter a cell range. If you are not sure how to point, please read Chapter 2, Using the Point Mode. The input area now displays the message:

Enter range to copy TO:

Either enter the upper left-hand cell of the destination range, or select that cell with the arrow keys or mouse. There is no need to specify the second part of the destination address since the size of the range is specified by the source address.

NOTE: Destination cells are erased when data is copied into them. If you copy to a destination range that is within the source, you may lose data.

Range Move (/RM)

The Range Move command is like the Range Copy command, except that the source range (the range you are copying FROM) is erased after the copy is complete.

Range Erase (/RE)

You may want to erase only a portion of a worksheet. Specify the address as described under Range Copy. When you select Range Erase, **ANALYZE!** prompts:

Enter range to erase:

You can enter a single cell or a range (two cell addresses separated by two periods).

Once you erase a range you cannot recover it. Please make sure that the addresses are absolutely accurate.

Range Format

Use the Range Format command to adjust the appearance of a particular cell or group of cells. (The exception is cells containing labels, which are controlled by Range Label.)

The operation of all of the sub-commands is essentially the same. Select what format option you want, and then **ANALYZE!** prompts you for the range to format. Input this range by typing it manually or pointing to it with the arrow keys or mouse. When you select the range, **ANALYZE!** performs the function.

Range Format Reset (/RFR)

The Range Format Reset sub-command resets all format settings to the default value, which is whatever was set last with Worksheet Format.

Range Format General (/RFG)

The General format is the worksheet default. Unless you change or override a specific range, this is the format used. The format is whole numbers with as many digits displayed as fit in the width of the column. Trailing zeros are suppressed.

Range Format Fixed (/RFF)

This is the same as the General format except that you specify the number of decimal places displayed between 0-14. When you select this format, you are first prompted for the number of decimal places, with 2 as the default. The actual number of decimal places that can be displayed depends on your column width (if you want large numbers, make wider columns). This is the format to use if you do not want to suppress trailing zeros.

Range Format Scientific (/RFS)

This displays numbers in scientific (exponential) notation. For example, 5 billion (5,000,000,000) would be 5.00E+9.

Range Format Currency (/RFC)

This format is used to display monetary figures. The system first asks for the number of decimal places to show, with 2 as the suggested default (which is normal for money). This format shows a dollar sign before each number, has a comma between thousands and places any negative values in parentheses.

Range Format , (/RF,)

This command places commas in large numbers to denote thousands. Note that a comma takes up space in a column. If a number is too large to be displayed, the column is filled with asterisks. This format is the same as Currency, but without the dollar signs.

Range Format Percent (/RFP)

This format displays the value times 100, with a fixed number of decimal places, followed by a percent sign (%). For example, 0.8654 becomes 86.54%. Again, remember that the percent sign takes up cell space.

Range Format +/- (/RF+)

As an alternative to displaying an actual value, you may use pluses and minuses to create a positive and negative bar graph of a column of numbers. Normally, you want to duplicate the column of numbers into the adjacent column first so that the actual values are displayed next to the graph. You also might want to scale the graph using a formula that smooths the differences between the highest and lowest values. Remember that the column width may have to be adjusted to display the graph in its entirety. Negative values are displayed with

minuses (-), positive with pluses (+).

This format is sometimes called a horizontal pictograph.

Range Format Text (/RFT)

The Text command displays a formula in the body of the worksheet. Remember that column width may have to be adjusted to display the whole formula.

Range Format Date (/RFD)

In this special format, a positive number (rounded off to an integer) is considered to be the serial number, sometimes called a serial date, of a particular date. The number 1 is 01-Jan-1900, and 73049 is 31-Dec-2099. (You can generate these serial dates with the @DATE and @TODAY functions.)

These cells are displayed in the format DD-MMM-YY format. Years greater than 2000 will have a 1 prefixed in them. For example, 16-JAN-86 and 02-FEB-102, are 01/16/1986 and 02/02/2002, respectively.

Range Label

Much the same way Range Format offers commands to control the display of values, Range Label controls the display of labels. Making a worksheet visually attractive is important for more than aesthetic reasons. A neatly organized worksheet is easier and faster to use and can reduce errors. You can have labels centered or displayed to the extreme right or left side of the cell. Since these are Range commands, you can specify single cells or ranges of cells.

First you specify the format and then the cell(s) to apply the format. You can format a range in advance, if you know that it will be filled in with labels later. Otherwise, as you enter labels, they appear in

the format specified by Worksheet Label.

Range Label Left (/RLL)

This places a label to the left side of a cell. You can do the same thing when you enter the label by preceding it with an apostrophe (').

Range Label Center (/RLC)

Use Center to place a label in the center of a cell. You can do the same thing when you enter the label by preceding it with a caret (^).

Range Label Right (/RLR)

Use this option to place a label to the right side of a cell. You can do the same thing when you enter a label by preceding it with double quotes (").

Range Style

This option allows you to "style" your labels or values to make your worksheet more visually appealing, or to bring someone's attention to certain portions. To "style" a range, enter the range from the keyboard, use the mouse pointer or the point mode method. To make the cells attributes both bold and underlined, you would first select Range Style Bold, highlight the range, then select Range Style Underline and highlight the range again.

Range Style Plain (/RSP)

This option is used to remove all other Style attributes.

Range Style Bold (/RSB)

Boldfaces any data displayed in the specified range.

Range Style Underline (/RSU)

Underlines any data displayed in the specified range.

Range Style Italic (/RSI)

Italicizes any any displayed in the specified range.

Range Protect

Because it is so easy to accidentally change the contents of a cell, a protection facility has been incorporated into **ANALYZE!**. You can protect a cell or cell range from alteration or erasure.

The default is that all cells in a worksheet are protected, but the master switch (Worksheet Protect) is off. This global protection can be checked with the Worksheet Status command.

If Global Protection is OFF, no cells can be protected. When you switch Global Protection ON, you can protect and unprotect individual ranges with the Range Protect command. Remember, when you switch global protection ON, all the cells in the sheet become protected. You must first unprotect the cells you need to alter.

Range Protect Disable (/RPD)

To unprotect cells or ranges, select Range Protect Disable. **ANALYZE!** prompts you to:

Enter range to unprotect:

Select the cell range in the normal fashion.

Range Protect Enable (/RPE)

This command works like Disable, except that it protects the selected range.

Range Name

ANALYZE! allows you to name a range of cells for easy reference. For example, let's say a row of cells constitutes February's gross receipts. Instead of referring to the range B6..G6, you could name it FEBSALES. You can even use the name within a formula. So instead of writing a formula for totaling the row, you can write:

@SUM(FEBSALES)

Keeping track of named ranges is much easier when you press the <F3> key whenever you are asked:

Enter Range:

The <F3> key displays a requester listing all named ranges and their addresses. You can highlight ranges with the mouse, then select the Select gadget to satisfy the entry request.

What's the advantage to using this method, as opposed to the point mode? Well, there are two. First, you can reference a range that does not appear in the current window or is too far spread apart to use the mouse pointer effectively. As a matter of fact, it can be in the farthest corner of your worksheet. And second, even if this range of cells gets moved later, using the named referenced will allow all the formulas which use it to "follow it around" the worksheet.

Range Name Create (/RNC)

To create a named range, select Range Name Create. You are asked to:

Enter (range) name: (up to 15 characters long)

When you press <RETURN>, you are then asked to:

Enter range:.

Select the range to be named with the Point mode or type in the co-ordinate of a single cell or a range defined with two cell addresses. If there are ranges already named, press the <F3> function key to display the Range Name Requester so you can select a range from the list.

Range Name Right (/RNR)

You can use the labels that are already in a worksheet to name adjacent cells. For example, if column A contains an inventory of products, you can name the adjacent cells (sales figures) in column B by the labels in column A. In this way, you can use the values in column B as part of formulas without having to name each individual cell or remember its address. You can name the figures in column B by the existing labels in column A:

	A	B	C	D	E	F
1		JAN	FEB	MAR		
2	TILE	9000				
3	GLUE	2000				
4	GROUT	700				
5		----				
6	TOTAL	11700				
7						

If you used Range Name Right on the range A2..A4, you would have defined a range of labels pointing to values to their right. Later, you could use the labels TILE, GLUE, and GROUT in formulas exactly as you might the cell names B2, B3, and B4.

Only the adjacent cell below, above, or to the left or right can be named by a label. Range Name Right defines cells to the right of the labels. When you select this command, you are asked to select the range to name. Select the range of the LABELS, not the VALUES. The values are assumed from the direction you specify.

Range Name Left (/RNL)

This is the same as Range Name Right, except it defines cells to the left of the range that is named.

Range Name Below (/RNB)

This command defines cells below the range that is named.

Range Name Above (/RNA)

This command defines cells above the range that is named.

Range Name Delete (/RND)

To delete a range name (not the contents of the range), select Range Name Delete. The Range Name Requester appears. Select the range name to delete and select the Select gadget. Remember, you can reference the same range through two or more names. If you do this often, delete extra names.

Range Name Erase (/RNE)

Range Name Erase completely clears all range names currently defined.

THE PRINT MENU

You can produce titles, page numbers, and multi-page reports, complete with headers and footers. The report can be sent directly to the printer or stored in a file. Your commands here are:

Print
Align
Linefeed
Go
  Printer
  File
Range
Borders
  Columns
  Rows
Margins
  Page-Length
  Left
  Right
  Top
  Bottom
Options
  Clear
  As-Displayed
  Use-Margins
  Header
  Footer
  Setup
Clear
  All
  Borders
  Margins
  Range

Print Align (/PA)

This command tells **ANALYZE!** that the paper in the printer is now at the top of the form. This is used when you have manually advanced the paper (or if for some other reason, **ANALYZE!** has lost track of the perforations).

Set the paper to the top of form and select Print Align.

Print Linefeed (/PL)

Use this command to advance the paper by a single line.

Print Go

Use the sub-commands under Go to initiate the printing routines. Be sure to have all necessary parameters defined before you use this command.

Print Go Printer (/PGP)

This sub-command initiates the printout to the line printer device. All currently defined Print menu settings are used.

Print Go File (/PGF)

This sub-command is identical to Printer, except that it sends the output to a disk file instead of the printer. When you select this command, **ANALYZE!** prompts you for the filename to store the data. Remember that all selected formatting commands are in effect, even to the file. You may want to first make sure that Print Options Use-Margins is NOT checkmarked. To print a file directly to the printer (by-passing preferences completely), select PAR: as the file-name to print to.

Print Range (/PR)

This command is used to define the print range. When printing a report, you do not need to output the entire worksheet. When you select this command, **ANALYZE!** prompts you to:

Enter range to print:

Either type in the range or point to it in the normal manner.

The first cell address should be the top left side of a report, with the second address at the bottom right. If the specified range is larger than the paper, ANALYZE! creates a multiple-page printout.

Print Borders

You can define row labels or column labels as borders for your printout. Use this command when the values your labels identify will generate more than one page.

Print Borders Columns (/PBC)

This sub-command defines a column label, or labels, as titles to be printed out with their corresponding values. When asked to define the range, enter the range of the labels you want. The labels of the specified columns are printed along the left margin of each page.

Print Borders Rows (/PBR)

This sub-command defines a row label, or labels, as titles to be printed out along with their corresponding values. When asked to define the range, enter the range of the labels you want. The labels of the specified rows are printed at the top of each page.

Print Margins

The Margins command has a series of sub-commands that allow you to specify the page-length, top, bottom, left, and right margins for your printout. When you select one of the sub-commands from the menu, **ANALYZE!** asks you to enter a number corresponding to characters for left and right margin and lines for top and bottom margins. **ANALYZE!** defaults are pre-set as follows:

Margin Defaults

Length	(1-100)	66
Left	(0-230)	6
Right	(0-230)	71
Top	(0-10)	3
Bottom	(0-10)	3

Print Margins Page-Length (/PMP)

Use this sub-command to tell **ANALYZE!** how many lines will be printed on one page of paper. This assures proper placement of headers and footers and the proper skipping of perforations. When you select this command, you are prompted for the page length, with the last used value (default 66) shown as the default. Enter the changes and press the <RETURN> key. This value is stored, along with the rest of printer definitions, with each worksheet.

Print Margins Left (/PML)

This sub-command sets the number of blank characters to be printed between the left side of the paper and the first column of **ANALYZE!**'s printed output. This command is useful for indenting.

Print Margins Right (/PMR)

This sub-command sets the number of characters printed on each

line, from the left side of the paper. Therefore, the number of characters on each line is equal to the right margin minus the left margin.

Print Margins Top (/PMT)

This sub-command sets the number of blank lines **ANALYZE!** prints between the top of the paper and any defined headers (or the start of the report, if there are no headers). **ANALYZE!** always leaves two blank lines between the header and the body of text.

Print Margins Bottom (/PMB)

This sub-command sets the number of blank lines **ANALYZE!** prints between the bottom of the paper and any defined footers (or the end of the report, if there are no footers). **ANALYZE!** always leaves two blank lines between the footer and the body of text.

Print Options

This menu allows you to set such options as headers, footers and a setup string. Other options are selected to determine what type of information is sent to the printer.

Print Options Clear (/POC)

This sub-command tells **ANALYZE!** to clear all the other options found in this pop-out menu.

Print Options As-Displayed (/POA)

When this sub-command is checkmarked, it tells **ANALYZE!** to print out the cells exactly as they appear on the screen, including any special styles. This is what you normally desire for printed output. Select Print Options Clear to remove the checkmark. When it is not selected, the cell formulas are printed one line at a time.

Print Options Use-Margins (/POU)

When this sub-command is checkmarked, all the values under the Print Margins menu are used. This is normally desired for printed output. Select Print Options Clear to remove the checkmark. When it is not selected, no margins are printed or any special cell attributes.

Print Options Header (/POH)

See Footer, below.

Print Options Footer (/POF)

Just like a word processor, **ANALYZE!** lets you set a repeating header and footer to appear at the top and bottom of each page of a report. There are three fields that automatically format to the left or right margin or center text. Any one or all three may be used. Some examples:

Left/Center/Right would cause:

Left **Center** **Right**

/Center/ yields the following results:

Center

//Right creates this result:

Right

You can incorporate the current date and/or page numbers using the following codes:@ = today's date # = page number (starting with 1)

For example, @/Page #/**ANALYZE!** yields:

When you select either Header or Footer, **ANALYZE!** asks you to enter the corresponding string. These function in an identical manner, except that Headers are at the top of the page and Footers are at the bottom.

Print Options Setup (/POS)

This lets you send a value or several values to your lineprinter for control purposes. Use commas to separate multiple values. When you select this command, you are prompted to:

Enter setup string:

Type in the setup string (in decimal code) and press the <RETURN> key. It is possible to take advantage of alternate type fonts and special printer functions if you know the control codes (see your printer documentation). For Epson compatible printers, a "^O", no quotes, would place the printer into the condensed mode. When using the decimal value, precede the code with a percent sign. For instance, a %15 is equivalent to the "^O" shown above.

Print Clear

Use the Reset sub-commands to clear the printer options. Since these options are stored with the worksheet, this is the only way, once they are defined, to print the worksheet without them.

Print Clear All (/PCA)

This sub-command completely clears out all defined print formatting.

Print Clear Borders (/PCB)

This sub-command cancels only the border settings (see Borders, above).

Print Clear Margins (/PCM)

This sub-command resets Margins, PageLength, and Setup String to their default values. (See Margins, PageLength, and Setup String.)

Print Clear Range (/PCR)

This cancels the currently defined print range. Remember, you must define another range before you can generate a printout.

THE GRAPH MENU

The Graph menu contains all the commands needed for defining, printing, storing and viewing graphs. Up to 4 graphs can be shown at one time, in 4 or 8 color. Note: if using 8 color, memory limitations will probably restrict you to 2 graphs. For owners of 1Mb expansion ram cards, 4 graphs will be no problem. Available commands are:

Graph
Archive
  Definitions
  Picture
View
Color
  4
  8
Number
  1
  2
  3
  4

- Model
- Pie
- Bar
- Line
- X-Y
- Area
- Stk-Bar
- Z-Pie
- 3d-Bar

Data
- A
- B
- C
- D
- E
- F

Labels
- Legend
- Group
- A
- B
- C
- D
- E
- F

Titles
- Clear
- First
- Second
- X-Axis
- Y-Axis
- Z-Axis

Scale
- Automatic
- Manual
- Low-Limit

High-Limit
Options
Clear
Lines
Symbols
X-Grid
Y-Grid
Z-Grid
Pitch/Yaw
Reset
All
Legend
Group
Elements
Data
Print

Graph Archive

This menu is used to store graph pictures or the definitions for your graphs.

Graph Archive Definitions (/GAD)

This command is used to store all the current graph settings on disk so they can be recalled later, avoiding having to re-define the graph each time you want to view it.

Graph Archive Picture (/GAP)

This option saves whatever graphs being viewed to a disk file in IFF file format. This allows your graphs to be shown later with a "SHOW" program, or edited with any of the popular "paint" and "draw" programs.

Graph View (/GV)

This command has **ANALYZE!** draw the currently defined graph (or graphs, if using multiple graphs). When you've completed defining the graph select this command.

If you're using 4-color graphs, each graph will open its own window and display. If you're using 8-color graphs, **ANALYZE!** will open a custom screen, each graph window will open and the graphs will display.

This command is duplicated by pressing the <F10> function key.

Graph Color

This menu is used to select the color of your graphs. 4-color graphs use the standard Workbench screen for their windows. Because of this, you can re-size the graph windows and have them on the screen at the same time as your spreadsheet. 8-color graphs need to open a custom screen for their windows. You can "pull down" that screen and see the spreadsheet on the Workbench screen underneath, or use the LeftAmiga N and M keys. A LeftAmiga N will display the active Workbench screen (**ANALYZE!**) to the front, and the LeftAmiga M will put the Workbench screen to the back and display the 8-color graphs. Once in the other screen, press the left mouse button to activate the screen.

Graph Color 4 (/GC4)

This option displays all graphs in 4 colors. The graphs will appear in the same window as the **ANALYZE!** worksheet.

Graph Color 8 (/GC8)

This option displays all graphs in 8 colors, using a custom screen.

Graph Number

This menu allows you to define and view the settings for up to four graphs. The graph number that is checkmarked will reflect the graph settings that are displayed in the Graph menu. The active graph window or the last active graph window will be reflected by the checkmark on the menu.

Graph Number 1 (/GN1)

This option allows you to define the options for viewing the first graph.

Graph Number 2 (/GN2)

This option allows you to define the options for viewing the second graph.

Graph Number 3 (/GN3)

This option allows you to define the options for viewing the third graph.

Graph Number 4 (/GN4)

This option allows you to define the options for viewing the fourth graph.

Graph Model

This menu selection determines how the data in your graph will be displayed. If you're not certain what these various graphs look like, take some time to display each one of them. You can define your data and keep changing the graph model until you approve of the way the graph shown represents your data.

Graph Model Pie (/GMP)

The Pie chart can display only one range and only about 10-15 elements. If you put more elements than this into the graph, it will display, but labels may overprint each other and become illegible. Pie charts DO use a second range (B-Range), but not to display. The B-Range is used to "explode" elements of the pie chart. Exploded elements are pieces of the pie that are separated from all other elements and they stand out from the rest of the elements in the graph. A non-zero value in the B-Range explodes the corresponding element in A-Range. A value of 0 keeps the piece joined together with the pie. If the B-Range is not as large as the A-Range, elements not specified as exploding are assumed to be normal.

The Pie chart is also the only graph (other than Z-Pie) where element labels longer than 2 characters are practical, because element labels are printed horizontally in pie charts.

Graph Model Bar (/GMB)

The bar graph displays each element in the range as a bar. A scale will display along the left side of the graph using the lowest and highest values for each element range. The width and height of the bar will vary depending on the number of elements in the graph and the size of the graph. If you have a bar graph with many elements and the window is re-sized too small, some of the elements may not be displayed, as they will become too thin to draw properly.

Graph Model Line (/GML)

The line graph uses a continuous line for each element range. Select Graph Options Symbols to see where each line intersects with a group label, if one is used.

Graph Model X-Y (/GMX)

Each point in an X-Y graph must be made up of two data ranges

and must have a minimum of two ranges for a point to appear on the graph. Additional ranges will be set against the A-Range. This effectively gives you up to 5 pairs of ranges totalled (A-Range paired with B-Range, A-Range paired with C-Range, A-Range paired with D-Range, etc.). The A-Range specifies the X-Axis and any additional ranges specify points on the scale.

Graph Model Stk-Bar (/GMS)

A stacked bar graph draws each bar as the total of all its elements and shows each element separately within the bar. This causes some people to think the graph scaling (the incremental points along the side of the graph) is incorrect, when in fact it is not.

Graph Model Z-Pie (/GMZ)

Also known as 3d-Pie. The 3 dimensional pie chart carries the same restrictions and rules as the normal pie chart.

Graph Model 3d-Bar (/GM3)

The 3 dimensional bar chart is unique since it's the only graph where one range could possibly obscure another when the graph is drawn. This means that 3d-Bar graphs are not necessarily suited to all forms of data. You can adjust the viewing angle with the Pitch/Yaw option under the Graph Options menu to improve the display in some cases. But there may be some instances when a 3d-Bar graph is simply not proper.

Graph Data

ANALYZE! Graphs can contain up to six ranges per group with an unlimited number of groups and elements in the ranges. There are two exceptions; the X-Y graph, with only three ranges per group, and the Pie graph, displaying only one range with an effective display range of only 10-15 elements.

To define each range in your graph, select the option with corresponds to the range you want to define. A prompt will appear at the top of the **ANALYZE!** window asking you to enter the range coordinates. You may define the graph range as you would any other range in **ANALYZE!**.

This command is defining data ranges ONLY. Labels and all other ranges are defined with additional commands.

Graph Data A (/GDA)

Defines data range A for the current graph selected.

Graph Data B (/GDB)

Defines data range B for the current graph selected.

Graph Data C (/GDC)

Defines data range C for the current graph selected.

Graph Data D (/GDD)

Defines data range D for the current graph selected.

Graph Data E (/GDE)

Defines data range E for the current graph selected.

Graph Data F (/GDF)

Defines data range F for the current graph selected.

Graph Labels

An unclear graph makes no point and is of little value to you. Labels will serve to identify the data. **ANALYZE!** Graphs offer three different kinds of labels:

Graph Labels Legend (/GLL)

Legend labels are used to identify the ranges in a graph. If you define a graph with four different ranges and you want labels on the graph that identify each range, you can define any range of up to six cells as being the "legend range".

Graph Labels Group (/GLG)

Group labels identify a "group" of ranges. When defining more than one range in a graph, you will have elements from each range displayed next to each other. To identify each of these element groups, use group labels.

Graph Labels A (/GLA)

Defines the individual elements for Graph Data A. Element labels work quite well with pie charts, regardless of length, but it is not recommended they exceed two characters in length with other graphs.

Graph Labels B (/GLB

Defines the individual elements for Graph Data B.

Graph Labels C (/GLC)

Defines the individual elements for Graph Data C.

Graph Labels D (/GLD)

Defines the individual elements for Graph Data D.

Graph Labels E (/GLE)

Defines the individual elements for Graph Data E.

Graph Labels F (/GLF)

Defines the individual elements for Graph Data F.

Graph Titles

ANALYZE! Graphs permit you to define titles for each graph window. Titles serve to make your graphs easier to understand. You can have one or two titles above the graph, and one on each axis (across the bottom, or along the side).

Graph Titles Clear (/GTC)

This option erases all the titles for the current graph; use it when you want to start over again.

Graph Titles First (/GTF)

The First title is located at the top of the window.

Graph Titles Second (/GTS)

The Second title is located at the top of the window, centered underneath the First title and smaller in size.

Graph Titles X-Axis (/GTX)

This title appears horizontally along the bottom of the graph.

Graph Titles Y-Axis (/GTY)

This title appears vertically along the left side of the graph.

Graph Titles Z-Axis (/GTZ)

This title works ONLY for 3d-Bar graphs and appears along the right hand side of the graph.

Graph Scale

ANALYZE! Graphs normally create the scale for you; this is Automatic scaling and it is the default condition. Under most circumstances you will not need to change it. If you should have a special situation, **ANALYZE!** is flexible enough to accommodate you.

Graph Scale Automatic (/GSA)

ANALYZE! Graphs automatically creates the scale.

Graph Scale Manual (/GSM)

This option lets you specify the low and high points of the scale. In some cases, you may find you need to control where the scale starts and stops to make a more presentable graph. This may be needed when you have one element with a very low value, while the rest of the elements are much greater in value. By changing the High-limit of the scaling you force the smaller value to appear a bit more normally in the graph. Used in combination with the next two options, Manual scaling lets you do just that.

Graph Scale Low-Limit (/GSL)

Specifies the starting point of a manual scale.

Graph Scale High-Limit (/GSH)

Specifies the finishing point of a manual scale.

Graph Options

This menu contains a collection of miscellaneous options that affect the appearance of your graph. Much like labels and titles, they can used to greatly enhance the picture you make with your graph.

Graph Options Clear (/GOC)

This option resets all of the other options in this pop-out menu. Use this when you want to start over with defining your options.

Graph Options Lines (/GOL)

This option causes the Line and X-Y graphs to be drawn with lines connecting the points. This is the default setting.

Graph Options Symbols (/GOS)

This option causes the Line and X-Y graphs to be drawn with the symbol located at the X,Y coordinate that's specified by the data ranges selected. This is useful for special applications, such as displaying an X-Y graph. Select both Lines and Symbols to see each coordinate symbol connected with a line.

Graph Options X-Grid (/GOX)

This option turns on the grid lines for the X-Axis (which is going horizontally across the graph). These grid lines identify each element group and are especially useful with line graphs where it is difficult to see individual elements.

With the X-Y graph, the X-Grid has some additional meaning, since the X-Axis becomes another Y-Axis. In this case, the X-Grid is also identifying points on a scale and not elements or element groups.

Graph Options Y-Grid (/GOY)

This option turns on the grid lines for the Y-Axis (which is going vertically up the graph). These grid lines identify each point on the scale and are useful to accurately determine the values of the various elements when viewing the graph.

Graph Options Z-Grid (/GOZ)

This option turns on the grid lines for the Z-Axis (which is going from left to right on the 3d-Bar graph). These become the grid lines for the "floor" of the 3d-Bar graph's box.

Graph Options Pitch/Yaw (/GOP)

This is used to specify a new viewing angle for the 3d-Bar graph along its X-plane. This lets you "tip" the graph towards or away from you. A Pitch of 0 has you looking at the tops of the graph, and a Pitch of 90 is straight up and down. The default value is 40. These values are expressed in degrees of viewing angle. After entering the Pitch angle, you'll be prompted for the Yaw. This is similar to Pitch, except that it moves the graph on its Y-Axis, allowing you to "turn" the graph side to side. A Yaw of 0 has you looking straight into the sides of the bars, and a Yaw of 90 is looking at the front of the elements. The default value is 40.

Graph Reset

As you define graphs with **ANALYZE!**, there will be many times you'll either make a mistake or want to change something on a graph and need to erase some or all of the current definitions for the graph currently selected. This menu is where you accomplish that.

Graph Reset All (/GRA)

Resets ALL of the graph settings for the Graph Number currently selected. It gives you a "clean slate" to work with. Please use caution when selecting this option. If you've not saved your graph definitions, they're gone for good and you'll have to re-enter them.

Graph Reset Data-Ranges (/GRD)

Resets the data ranges A through F. This command erases all of the data ranges as soon as you select it. Please exercise a little caution when using it so you don't lose all your data ranges.

Graph Reset Element-Labels (/GRE)

Erases the element labels.

Graph Reset Legend-Labels (/GRL)

Erases the legend labels.

Graph Reset Group-Labels (/GRG)

Erases the group labels.

Graph Print (/GP)

This command will print hard copy of the current graph on your printer, assuming that it is capable of producing graphics and is supported by the Preferences printer driver.

ANALYZE! works with the Preferences drivers on this function, so your printer MUST be among those supported (or compatible) for this to work. **ANALYZE!** provides Preferences with a color map of the graph, so if the driver supports color for your printer, that's how you should see it. Black and white printers will print the graph in gray scales.

The size of the graph window will determine the size of the graph on the paper. You may wish to experiment a little with this, especially if you plan on mixing graphs and text together (for use with letterhead stationary, etc.).

THE CALCULATE MENU

The Calculate menu contains commands that affect exactly what methods **ANALYZE!** uses to calculate the various elements of the worksheet. Calculating the various interrelations between cells and ranges in a spreadsheet is an important and complex operation. Being able to change these procedures adds flexibility to ANALYZE!.

You can also tell **ANALYZE!** when to calculate the worksheet, either when you enter each cell is entered or only when you press the <F9> key. Your commands from the Calculate menu are:

Calculate
Method
  Manual
  Auto
Order
  Natural
  Rowwise
  Columnwise
Iteration
Alert
  Disable
  Enable

Calculate Method

You use the sub-commands under Method to change when **ANALYZE!** recalculates the worksheet.

Calculate Method Manual (/CMM)

This sub-command tells **ANALYZE!** that the worksheet should be recalculated only when you tell it to. Instead, the program displays the message CALC in the upper right hand corner of the screen to inform you that **ANALYZE!** believes the worksheet inaccurate. Press <F9> to recalculate.

When you are using a huge spreadsheet with many cells of data, **ANALYZE!** has to recalculate the entire worksheet each time you enter or edit a cell. This can create delays between cell entries. You can save time if you set recalculate to Manual, enter all your data, and then press <F9> to recalculate.

Calculate Method Auto (/CMA)

This sub-command tells **ANALYZE!** to recalculate the entire worksheet every time you change a new value. This includes cell entry, editing a cell, or any kind of global or range operation.

Calculate Order

This command controls the order in which **ANALYZE!** recalculates the worksheet. You should only change this when you have constructed a spreadsheet in which you need to explicitly control the recalculation order.

Calculate Order Natural (/CON)

The order in which a series of interrelations is physically distributed in a worksheet can make calculation awkward. For example, an item

in the top of a spreadsheet model may refer to a value that is calculated at the lower portion of the worksheet. When the top part of the worksheet is calculated, it does not have the current value from the bottom of the sheet.

Natural CALC looks ahead to calculate all cells necessary to produce a result for a cell. For example, assume cell B6 contains a formula that calls for the products of formulas in cells G25 and J21. **ANALYZE!** calculates cells G25 and J21 before displaying the result of the formula in cell B6.

Calculate Order Rowwise (/COR)

There may be situations in which having the worksheet calculated from top to bottom may be the only way to derive accurate information. The row command calculates the worksheet from top to bottom, row by row.

Calculate Order Columnwise (/COC)

There may be situations in which having the worksheet calculated from left to right across the columns is the only means to accurate results. This command forces the calculation to proceed in this manner.

Calculate Iteration (/CI)

Normally a worksheet needs to be calculated only once with each time it is recalculated. However, you can instruct **ANALYZE!** to recalculate between 1 and 50 times automatically. This is useful in cases where a spreadsheet is self-modifying (that is, one of the values produced by a calculation functions as a seed value for additional calculations, as in forecasting.)

Calculate Alert

This command informs **ANALYZE!** that it should signal when a spreadsheet recalculation is complete by producing an audible signal. You must either have your Amiga hooked up to amplifier or have a monitor capable of producing sound.

Calculate Alert Enable (/CAE)

This sub-command turns on an audible tone that signals you when a worksheet recalculation is complete.

Calculate Alert Disable (/CAD)

This sub-command turns off the audible tone option that signals you when recalculations are complete.

THE SORT MENU

The Sort menu selections are used to sort a range of data based on a column in either ascending or descending order. Blank cells, letters or formulas and numbers are all valid types of data. Your selections are:

Sort
Data-Range
Primary-Key
Secondary-Key
Go
Clear

Sort Data-Range (/SD)

This option allows you to define the range of data that **ANALYZE!** will sort.

Sort Primary-Key (/SP)

This command selects the primary column that will be sorted. After defining the column, a prompt will appear asking for the sort order. The options are "A" for ascending or "D" for descending order. If a Primary-Key is not defined, a requester with the message "Sort key out of range !!" will appear.

Sort Secondary-Key (/SS)

This command selects the secondary column to be sorted. Use a secondary key when two primary key cells will be identical, the secondary key will determine the order in which the identical cells will be sorted. A prompt will appear asking for the sort order. Secondary-Keys can be sorted in "A"scending or "D"escending order.

Sort Go (/SG)

This function initiates the actual sort, based on the defined sort data range, primary and secondary keys. A requester with the message "No range defined !!" will display if a sort range was not previously entered.

Sort Clear (/SC)

This option clears the Sort Data-Range, Primary and Secondary-Keys under the Sort menu.

GLOSSARY

A

Absolute Address — A cell address specified by particular row and column coordinates. A dollar sign precedes each coordinate of an absolute address. For example, A1 represents the cell at the intersection of column A and row 1.

Anchor Cell — The first cell in a cell range. See Chapter 3, Entering Cell Ranges with the Point Method.

At Functions — Built-in functions that perform specific calculations on your data. At functions also appear as @functions. See Chapter 6, The **ANALYZE!** Built-in Functions.

B

Backup — An identical copy of a diskette. Use the backup copies for running your software.

Boot — Initiate the automatic loading of operating system software into memory.

Borders — **ANALYZE!** has 3 types of borders:

- The area containing the lettered columns.
- The area containing the numbered rows.
- The labels you identify using the Print Borders commands. These labels become borders for your printout.

See Chapter 7, Print Borders Commands

C

Cell — One unit of worksheet information. A cell exists at the intersection of a column and a row.

Cell Address — The location of a specific cell. The cell address consists of a column coordinate (a letter or letters) and a row coordinate (a number). For example, A1 or BD156 are cell addresses. The cell address A1 specifies the location at the intersection of column A and row 1.

Cell Pointer — The reverse video bar that indicates the cell you are currently using. To change the location of the cell pointer, use the arrow keys, or the mouse. You can also change the location of the cell pointer by using the <F5> function key. See GOTO key.

Cell Range — Two or more adjacent cells.

Column — The vertical element of a cell address. Columns are identified by a letter or letters.

Command — An action you tell **ANALYZE!** to perform. You can issue a command by using the menus, function keys or keyboard commands.

Command Menu — The **ANALYZE!** command menu appears across the top of the screen when you press and hold the right mouse button. The command menu has six categories of commands: Worksheet, Range, Worksheet, Print, Graph, Calculate and Sort.

Coordinate — A column or a row. In the cell address A1, A is the vertical coordinate, and 1 is the horizontal coordinate.

Coordinate Address — The combination of a vertical column (a letter), and a horizontal row (a number). See Cell Address.

Copy — The **ANALYZE!** command that allows you to make a

duplicate of a cell or range of cells.

Current Worksheet — The worksheet currently on your screen. The worksheet name appears in the status display area if you loaded the present worksheet with the Archive Requester.

Cursor — The red block that appears in the Input Areas. When you next type characters with the keyboard, the characters appear at the cursor position.

D

Data Entry — The labels, values, and formulas that you enter into the worksheet. Also, the act of entering labels, values, and formulas into the worksheet.

Data Entry Area — The area in which the red cursor appears. When you enter information in a cell, the entry appears in the Data Entry Area. See Chapter 1, The Parts of the **ANALYZE!** Electronic Spreadsheet.

Default — A value supplied by the system in the absence of operator-supplied values.

Destination Range — The range you want to copy or move cells or formulas TO:.

Directory — An input prompt in the Archive Requester. Used to access another drive or directory

Disk or Diskette — The media on which you store your data. These 3.5-inch diskettes are also called microdisks.

Disk Drive — The part of your Amiga computer that you put your disks into. Normally this is the internal disk drive (DF0:). You may also have an external disk drive (DF1:). The disk drive can read data from a disk or write data to a disk.

DOS — This is an abbreviation for Disk Operating System. Amiga and **ANALYZE!** use Amiga DOS.

E

Edit (key) — To modify a cells contents. Press the <F2> key to enter the edit mode. See Chapter 2, Using the Edit Mode.

Edit Mode — The edit mode lets you edit the contents of a cell. To enter the edit mode press the <F2> function key. The status indicator in the upper right corner of the screen changes from READY to EDIT. See Chapter 2, Using the Edit Mode.

Erase — A command on the Range menu. Use this command to erase a cell or a range of cells. You cannot retrieve data that has been erased.

Error Message — The word Error! that appears when you make a mistake entering data into a cell. The Error! message continues to appear until you correct the entry or erase the cell.

Execution — The performance of a task. This term is sometimes used to describe the act of performing a program instruction.

F

File — An organized collection of data considered a single unit of information for storage purposes. The worksheets are saved in files on diskettes.

Filespec or Filename — Each **ANALYZE!** worksheet has a filename as long as 20 characters. The last 4 characters of a filename must be .SHT.

Footers — characters at the bottom of each page of your printouts. One of the most common footers is the page number.

Format — The way you choose to have your data appear. **ANALYZE!** lets you use several formats such as Currency, Percent, and Scientific notation. See Chapter 7, The **ANALYZE!** Menus and Options.

Formulas — Mathematical instructions inserted into an **ANALYZE!** cell to calculate your data.

Function keys — In **ANALYZE!**, the function keys provide several different actions. The following lists the function key assignments:

Key	Function
<F2>	Switch to and from the edit mode.
<F3>	Displays a table of currently defined range names when you are prompted to enter a range. You can then use the mouse to highlight a range from this list and select it, avoiding typing in the range reference.
<F4>	Changes the cell references in the current cell from relative to absolute while the worksheet is in the POINT mode. Relative addresses change as they are copied or moved. Absolute references, shown with a dollar sign ($), do not change.
<F5>	GOTO key. Go directly to a specific cell.
<F6>	Change active window.
<F7>	Print worksheet using defined print range.
<F8>	Saves selected worksheet to disk automatically.
<F9>	Recalculate the entire worksheet. If your recalc method is automatic, the entire worksheet is recalculated when you make a cell entry.

<F10> Display Graphs. Will display up to 4 graphs at one time in either 4 or 8 colors.

Chapters 3 and 7 discuss the use of some function keys.

G

Global — The typed commands that affect the entire worksheet. For example, the Protect command is a global command because it protects all cells in the worksheet. The global status can be checked by using the Worksheet Status command.

Global Status — You can check the status of all global settings by selection the Status command on the Worksheet menu.

GOTO key — The GOTO key is the <F5> function key. When you press the <F5> key, this prompt appears:

Enter Address to go to: (Present Address)

Enter the destination cell and press the <RETURN> key. The cell pointer moves to the cell you identified.

H

Hardcopy — Paper printout of a file or transmission.

Hardware — Mechanical, electrical, electronic, or magnetic devices. The physical components of a system, as opposed to the software, or instructions given to the system. See Software and, Firmware.

Headers — Information at the top of every page of your printout. A common header is a title or the date. See Chapter 7, The Print Header Command.

Home — The home cell is normally A1. If A1 is used for a title.

The home cell is the first active cell.

I

Icons — The images used by **ANALYZE!** to represent files and directories on the workbench.

Input Area — An input area appears on a requester when you start **ANALYZE!** asking how much memory you want to use. To make an entry in the input area you must first select it with the mouse and press the left mouse button. You can then make an entry using the keyboard. Input areas are a part of requesters that require you to make a keyboard entry.

Input Display — The input display is in the top left corner of the screen. It is the area directly to the right of the cell pointer address. See Chapter 1, The Parts of the **ANALYZE!** Electronic Spreadsheet.

L

Label — Any entry that starts with a Label Prefix. When you enter a letter in the worksheet, **ANALYZE!** enters an apostrophe in front of the letter. The apostrophe is the default label prefix. See Label Prefix Characters, below.

Label Prefix Characters — The label prefix characters are used to cause a single label to appear in a certain area of the cell. Label prefixes are entered immediately in front of the label you want to effect. If you do not enter a label prefix the default is assigned. The default is the apostrophe, which causes labels to be flush left. The label prefixes are:

Prefix	Action
' (Apostrophe)	Left Justified
" (Quotes)	Right Justified
^ (Caret)	Centered
\ (Backslash)	Repeating Label

M

Master Diskette — The diskette included in the package when you purchased ANALYZE!

Menu — A group of command choices that appear when you hold down the right mouse button or press the "/" key from the keyboard. The six command menus are Worksheet, Range, Print, Graph, Calculate and Sort. For further information concerning the menus, see Chapter 7, The **ANALYZE!** Menus and Options.

Mode — A method of operation. For example, **ANALYZE!** enters the edit mode when you press the <F2> function key.

Mouse — The device you use to move the arrow shaped pointer around the screen. The mouse is also used to select menu options.

Mouse Pointer — The arrow shape that you manipulate with the mouse.

N

Named Range — A range of cells that have been assigned a name using the Create command on the Range Name menu.

O

Options — The choices available to you. In **ANALYZE!** your options include the use of the function keys and the various actions available in the command menus.

Optional Comments — You are prompted for optional comments when you save a worksheet to disk. If you do not want to make comments select the "OK" gadget with the mouse.

P

Peripheral — Any device connected to the computer and dependent on the computer for its operational instructions, such as a printer.

Program Disk — The disk containing the **ANALYZE!** program.

Prompt — A request for information from **ANALYZE!**. **ANALYZE!** prompts normally ask you to enter information.

Q

Quit Command — Quits **ANALYZE!** and exits to Workbench. To exit **ANALYZE!**, select Quit on the Worksheet menu or select the close window gadget in the upper left-hand corner of the title bar.

R

Range — A cell or group of cells in the worksheet. When prompted to enter a range, you have three options:

- Enter the range from the keyboard.
- Use the arrow keys to expand the cell range to include the cells you wish to define.
- Use the mouse to drag the highlighted portion until it expands to include the range you wish to enter.

Relative Address — An address specified in relation to an absolute address. A relative address changes depending upon its location in the worksheet.

Repeating Label — Repeating characters are caused by typing a backslash (\) in front of the character that you want repeated.

Requester — Requesters appear when **ANALYZE!** needs keyboard

input for such things as filenames and range names.

Reset — Reset options are available on the Worksheet, Range, Print, Graph and Sort menus.

Resume — This command appears on various requesters. Normally Resume returns you to the current worksheet and executes the changes you made. If you select the Resume option from the Range Name Requester, you will be prompted to Enter the range name:.

After you enter the range name **ANALYZE!** prompts you to enter the range you want to associate with the name you entered.

Row — The horizontal element of a cell address. Rows are identified by a numbered coordinate.

S

Screen — The currently displayed window of the worksheet.

Scrolling — Moving the view of the worksheet window to display different portions of the worksheet.

Sizing Device — The sizing device is located in the lower right hand corner of a window. Drag the sizing device to change the amount of worksheet area you can view at one time.

Software — Instructions to a computer; also called programs, code, and routines. See Hardware, Firmware.

Source Range — The cell or group of cells that you are copying or moving information FROM.

Status Bar — The bar located at the top of the screen that displays the worksheet name. When the right mouse button is pressed the status bar shows the command menus. The status bar is also called the Status Display or Title Bar.

Status Display — See Status Bar, above.

Status Indicator — The status indicator is located in the top right corner of your screen.

T

Titles — Labels used to identify information in rows or columns. Titles can be frozen in place using the Worksheet Titles command. For more information on the Titles command see Chapter 7, The Worksheet Titles command.

Tutorial — A hands-on, guided tour of a program. The **ANALYZE!** manual has two tutorials: Chapter 2, The **ANALYZE!** Beginner's Tutorial, and Chapter 3, The **ANALYZE!** Advanced Tutorial.

U

Unprotecting Entries — To unprotect a cell or range of cells, select Worksheet Protect Disable. This is necessary when you have protected a worksheet using the Worksheet Protect Enable command, and want to make changes to your worksheet.

V

Value — Any number or formula entered in the worksheet.

W

Window — That part of the screen that displays your worksheet.

Worksheet — The microcomputer's version of the accountant's ledger book. The worksheet is made up of a screen divided into a grid consisting of numbered rows and lettered columns.

INDEX

A

Adding element labels, 94
Amiga keys, 4-5
ANALYZE!
  command menus, 28, 40, 162
  icon, 2, 8, 14
  keyboard commands, 42
  requirements, 2
Anchoring a cell, 60-62
Archive requester gadgets, 49
Archiving graph definitions, 106

B

Backup diskette, 4, 53-54
Built-in formulas, 26, 145

C

Calculate Menu
  Calculate Alert Disable (/cad), 209
  Calculate Alert Enable (/cae), 209
  Calculate Iteration (/ci), 208
  Calculate Method Auto (/cma), 207
  Calculate Method Manual (/cmm), 207
  Calculate Order Columnwise (/coc), 208
  Calculate Order Natural (/con), 207
  Calculate Order Rowwise (/cor), 208
Cell pointer, 1, 12-13, 15-24, 28, 30, 32-35, 37-40, 51, 55, 60-61, 63, 65-70, 78-82, 84-85, 97, 114, 121-122, 124, 126-129, 132-135, 165-169, 175, 212, 216-217

Cell range, 1, 21, 33, 56-60, 65, 74-78, 95, 122, 124, 135, 173, 176, 181, 211-212, 219
Changing the anchored cell, 60
Changing the window size, 40
Choosing print options, 86
Copying formulas, 77-79
Copying ranges, 76
Copying worksheets, 51
Creating a formula, 77
Creating a graph with **ANALYZE!**, 93

D

Data entry area, 19-21, 27, 34, 37-38, 40, 213
Defining
  multiple ranges for graphs, 101
  elements for a graph, 93
  a print range, 86
  the type of graph, 94
Disk icon, 7, 14

E

Edit mode, 36-40, 136-137, 161-162, 214-215, 218
Electronic spreadsheets, 1
Entering
  cell ranges, 58
  element data ranges, 92
  element label ranges, 95
  graph titles, 100, 103-104, 116, 201-202
  group label ranges, 104
  labels, 27
  label ranges, 95
  legend label ranges, 98
  values, 25-26, 29-30

Erasing a window,
Erasing cells, 63, 65

F

Function key commands, 161

G

Global format commands, 83, 149
Global status, 83, 216
Graph Menu
  Graph Archive Definitions (/gad), 194
  Graph Archive Picture (/gap), 194
  Graph Color, 95, 97, 110, 195
  Graph Data A (/gda), 199
  Graph Data B (/gdb), 199
  Graph Data C (/gdc), 199
  Graph Data D (/gdd), 199
  Graph Data E (/gde), 199
  Graph Data F (/gdf), 199
  Graph Labels A (/gla), 200
  Graph Labels B (/glb), 200
  Graph Labels C (/glc), 200
  Graph Labels D (/gld), 201
  Graph Labels E (/gle), 201
  Graph Labels F (/glf), 201
  Graph Labels Group (/glg), 200
  Graph Labels Legend (/gll), 200
  Graph Model Bar (/gmb), 197
  Graph Model 3d-Bar (/3gm), 198
  Graph Model Line (/gml), 197
  Graph Model Pie (/gmp), 197
  Graph Model Stk-bar (/gms), 198
  Graph Model X-Y (/gmx), 197

Graph Model Z-Pie (/gmz), 198
Graph Number, 102, 105, 111, 196
Graph Options Clear (/goc), 203
Graph Options Lines (/gol), 203
Graph Options Pitch/Yaw (/gop), 204
Graph Options Symbols (/gos), 203
Graph Options X-Grid (/gox), 203
Graph Options Y-Grid (/goy), 204
Graph Options Z-Grid (/goz), 204
Graph Print (/gp), 205
Graph Reset All (/gra), 205
Graph Reset Data-Ranges (/grd), 205
Graph Reset Element-Labels (/gre), 205
Graph Reset Group-Labels (/grg), 205
Graph Reset Legend-Labels (/grl), 205
Graph Scale Automatic (/gsa), 202
Graph Scale High-Limit (/gsh), 203
Graph Scale Low-Limit (/gsl), 202
Graph Scale Manual (/gsm), 202
Graph Titles, 100, 103, 104, 116, 201, 202
Graph View (/gv), 195
Graph Window, 95-96, 105, 110, 116-117, 195-196, 201

H

Highlighted video bar, 1, 15
Horizontal totals, 68

I

Incorrect formula, 37
Initiating the printing procedure, 86

L

Label mode, 29, 39
Labeling items, 65
Loading
  an existing worksheet, 73, 86
  the **ANALYZE!** program, 11, 14, 219

M

Macro commands, 121, 123, 128-129, 135-140, 142
  {beep}, 138
  {branch}, 130-131, 134, 138-140, 142-143
  {getlabel}, 138-139
  {getnumber}, 139
  {if}, 139-140, 142
  {left}, 134
  {let},140-142
  {menubranch}, 129-130, 132, 134, 141-142
  {quit}, 142
  {return}, 140, 142-143
  {say}, 143
  {step}, 136-137
Macro keys, 121, 129, 134, 136-137
  {abs}, 135
  {backspace}, 137
  {bigleft}, 135
  {bigright}, 135
  {bs}, 137
  {calc}, 136, 138
  {del}, 137
  {delete}, 137
  {down}, 134
  {edit}, 135
  {end}, 135
  {esc}, 137

{escape}, 137
{goto}, 135
{graph}, 136, 138
{help}, 135
{home}, 135
{left}, 134
{name}, 135
{pgdn}, 135
{pgup}, 135
{print}, 136
{right}, 135
{save}, 136
{store}, 136
{up}, 134
{window}, 135
{{}, 137
{}}, 137
{~}, 137
{?}, 137
Margin defaults, 188
Master diskette, 4-5, 8, 218
Mathematical operators, 31, 36
Memory
allocated, 14
expansion boards, 4
requirements, 91
Mouse pointer, 4-5, 7-8, 14-15, 21, 34, 40-43, 46, 48, 50, 52-55, 60-61, 63-65, 76, 80, 93-105, 107-108, 125, 165, 180, 182, 218
Moving a formula, 80
Moving cells, 64, 80

P

Point mode, 21, 29, 35, 58, 64, 80, 135, 176, 180, 182-183, 215

Print Menu
  Print Align (/pa), 186
  Print Borders Columns (/pbc), 187
  Print Borders Rows (/pbr), 187
  Print Clear All (/pca), 191
  Print Clear Borders (/pcb), 192
  Print Clear Margins (/pcm), 192
  Print Clear Range (/pcr), 192
  Print Go File (/pgf), 186
  Print Go Printer (/pgp), 186
  Print Linefeed (/pl), 186
  Print Margins Bottom (/pmb), 189
  Print Margins Left (/pml), 188
  Print Margins Page-Length (/pmp), 188
  Print Margins Right (/pmr), 188
  Print Margins Top (/pmt), 189
  Print Menu, 136, 186
  Print Options As-Displayed (/poa), 189
  Print Options Clear (/poc), 189
  Print Options Footer (/pof), 190
  Print Options Header (/poh), 190
  Print Options Setup (/pos), 191
  Print Options Use-Margins (/pou), 190
  Print Range (/pr), 187
Printing
  an **ANALYZE!** report, 85
  to a file, 85, 87
Project icons, 2-3, 52
Protecting and unprotecting entries, 81

Q

Quitting **ANALYZE!**, 49

R

Range Menu
  Range Copy (/rc), 163, 175
  Range Erase (/re), 176
  Range Format Currency (/rfc), 178
  Range Format Date (/rfd), 179
  Range Format Fixed (/rff), 177
  Range Format General (/rfg), 177
  Range Format Percent (/rfp), 178
  Range Format Reset (/rfr), 177
  Range Format (/rf), 178
  Range Format Scientific (/rfs), 178
  Range Format Text (/rft), 179
  Range Label Center (/rlc), 180
  Range Label Left (/rll), 180
  Range Label Right (/rlr), 180
  Range Move (/rm), 176
  Range Name Above (/rna), 184
  Range Name Below (/rnb), 184
  Range Name Create (/rnc), 183
  Range Name Delete (/rnd), 184
  Range Name Erase (/rne), 184
  Range Name Left (/rnl), 184
  Range Name Right (/rnr), 183
  Range Protect Disable (/rpd), 181
  Range Protect Enable (/rpe), 182
  Range Style Bold (/rsb), 180
  Range Style Italic (/rsi), 181
  Range Style Plain (/rsp), 180
  Range Style Underline (/rsu), 181
Range Names, 74-76, 161, 184, 215, 220
Ready mode, 23, 38-39, 125
Relative and absolute formulas, 77
Replacing an existing worksheet, 72
Requester prompts, 4
Resetting format commands, 71

S

Saving your worksheets, 43
Scroll bars, 1, 18-19
Selecting a file, 73
Setting printer preferences, 87
Sort Menu, 141-142
  Sort Clear (/sc), 210
  Sort Data Range (/sd), 210
  Sort Go (/sg), 210
  Sort Primary-Key (/sp), 210
  Sort Secondary-Key (/ss), 210
Sorting data, 88
Startup-Sequence, 2-3
Status indicators, 19

T

Terms used, 9
The Archive requester, 44, 46, 49, 54-55, 72-73, 164, 213
The Calculate Menu, **See Calculate Menu**
The Graph Menu, **See Graph Menu**
The Print Menu, **See Print Menu**
The Range Menu, **See Range Menu**
The Sort Menu, **See Sort Menu**
The Worksheet Menu, **See Worksheet Menu**

U

Using group labels in a graph, 104
Using legends and titles, 98, 103

V

Value mode, 29
Vertical totals, 67
Viewing a graph, 94-95, 111

W

What makes up a graph?, 92
Worksheet Menu
  Worksheet Archive (/wa), 164
  Worksheet Column Global (/wcg), 168
  Worksheet Column Reset (/wcr), 168
  Worksheet Column Set (/wcs), 168
  Worksheet Delete Column, 166-167
  Worksheet Delete Row (/wdr), 167
  Worksheet Erase (/we), 165
  Worksheet Format Currency (/wfc), 170
  Worksheet Format Date (/wfd), 171
  Worksheet Format Fixed (/wff), 170
  Worksheet Format General (/wfg), 170
  Worksheet Format Percent (/wfp), 171
  Worksheet Format Scientific (/wfs), 170
  Worksheet Format Text (/wft), 171
  Worksheet Format (/wf), 170-171
  Worksheet Insert Column (/wic), 165
  Worksheet Insert Row (/wir), 166
  Worksheet Label Center (/wlc), 172
  Worksheet Label Left (/wll), 172
  Worksheet Label Right (/wlr), 172
  Worksheet Protect Disable (/wpd), 173
  Worksheet Protect Enable (/wpe), 173
  Worksheet Quit (/wq), 173
  Worksheet Status (/ws), 164
  Worksheet Titles Clear (/wtc), 169
  Worksheet Titles Horizonal (/wth), 169
  Worksheet Titles Vertical (/wtv), 169

ANALYZE! ELECTRONIC SPREADSHEET APPENDIX A

This appendix covers additions to the **ANALYZE!** v2.00 program not documented in the manual.

There is an additional command in your Startup-Sequence with the statement:

STACK 15000

This assigns extra memory for **ANALYZE!** to use when performing extensive sorting, etc.. If you wish to run **ANALYZE!** from CLI and your Workbench diskette was not a copy of your **ANALYZE!** master, you may wish to enter the above command while in CLI to insure you have enough memory for certain operations.

The <F6> function key was documented improperly in the manual. Instead of switching active windows, this function key will automatically re-size your **ANALYZE!** window to the full size of the screen. This allows you to decrease the **ANALYZE!** window to perform Workbench operations and quickly return to a full window when you activate the **ANALYZE!** window.

THE ARCHIVE REQUESTER

Two improvements have been made to the Archive requester. If you are using the mouse pointer to select a file, you may now press the left mouse button twice in quick succession while the mouse pointer is on the filename to have the file selected and **ANALYZE!** automatically Get it. Instead of two steps, the process has been reduced to one.

When the filenames are displayed, the filesize in bytes and the date and time now appear to the right of the filename, where the comments would appear if no comments were entered when the file is Stored. In addition, comments now appear flush right within the comment display area.

There are three additional functions to the program and this appendix will be useful as a reference. One of the changes is found under the Worksheet menu, and the other two are under the Range menu.

WORKSHEET ARCHIVE

Worksheet Archive now displays a pop-out menu for Archive support of two file formats.

Worksheet
Archive
  ANALYZE!
  123

The first, **Worksheet Archive ANALYZE!**, is self-explanatory. This command is used to Get, Store and Delete standard **ANALYZE!** worksheets. All **ANALYZE!** worksheet filenames end with the file-name extension ".sht".

The second item is labeled **Worksheet Archive 123.** This menu item is used to Get, Store and Delete worksheets used by a couple of popular spreadsheet programs for the IBM and the Amiga computer. These worksheet filenames end with the filename extension ".wks".

Not all electronic spreadsheets store their worksheets in the same way. **ANALYZE!** stores its worksheets one particular way while several others store their worksheets using the file format of a well-known spreadsheet program for the IBM world. Due to popular demand, we have added this type of worksheet support to **ANALYZE!.**

ANALYZE! will automatically do the necessary conversion for the particular file formats when Getting and Storing ".wks" worksheets. This allows you to load an **ANALYZE!** ".sht" and Store it out under a ".wks" file format, using **Worksheet Archive 123.** Doing the reverse is just as easy by Getting ".wks" worksheets and Storing

them using the **Worksheet Archive ANALYZE!** file format.

In addition, **ANALYZE!** remembers which **Worksheet Archive** file format is being used to automatically store the worksheet under the proper file format when using the <F8> worksheet save function key.

Each Archive requester will display only those worksheets with the filenames that end in the extension used for each file format: ".sht" for **Worksheet Archive Analyze!** and ".wks" for **Worksheet Archive 123.**

ANALYZE!'s Archive requester also keeps track of the current worksheet selection, no matter which **Worksheet Archive** you are using. This allows you to use separate drawers (sub-directories) for each type of worksheet without having to change the "Directory:" entry everytime you switch from one **Worksheet Archive** to the other.

RANGE IMPORT AND RANGE XPORT

These two additional items have been added to the Range menu. Using **Range Import** and **Range Xport,** you now have the ability to:

Combine worksheets
Move data from one worksheet to another
Copy data from **ANALYZE!** and insert it in a **SCRIBBLE!** document
Insert **SCRIBBLE!** text in an **ANALYZE!** worksheet
Take columns of numbers created in **SCRIBBLE!** and have them automatically converted to columns and rows of data in **ANALYZE!**

ANALYZE! and **SCRIBBLE!** accomplish this using the AmigaDOS Clipboard facility. While you do not have to be familiar with how Clipboard works, your only concern should be that data can now be moved from one program to the other with ease.

The flexibility of Clipboard is such that even if you do not have enough memory to run **ANALYZE!** and **SCRIBBLE!** at the same time, you can perform a **Range Xport** with **ANALYZE!**, quit **ANALYZE!**, load **SCRIBBLE!** and do a **Text Paste** with no problems whatsoever. The reverse examples also hold true; while running **SCRIBBLE!**, perform a **Text Cut** or **Text Copy,** quit **SCRIBBLE!**, load **ANALYZE!** and perform a **Range Import.**

As with any new function, practice makes perfect. Feel free to try as many variations as you feel is necessary to make you comfortable with the use of these powerful new features.

If you do not own a copy of **SCRIBBLE!**, you may wish to consider purchasing it so that you can fully benefit from the ability to integrate your electronic spreadsheet with your word processor.

The functions documented below use **ANALYZE!** and **SCRIBBLE!** for examples. While other Amiga programs support a Clipboard function, we cannot guarantee that it will work as is documented with **ANALYZE!** and **SCRIBBLE!**.

THE RANGE MENU

These menu items will appear as follows:

Range
Import
  Formulas
  Numbers
  Text
Xport
  Formulas
  Numbers

Range Import

This menu item will import information into the worksheet in one of

several ways. The location of the cell pointer is where the data will be entered. If the cell pointer is in a location where data exists, then the imported data will delete the data present and overwrite it with the information you highlighted with **Range Xport** from **ANALYZE!** or **Text Copy** or **Text Cut** from **SCRIBBLE!**.

Range Import Formulas (/RIF)

This option will be used to combine two worksheets or portions of one worksheet to another. The upper-left cell address of the defined range from **Range Xport Formulas** will appear where the cell pointer is located when performing the **Range Import Formulas.** Any data existing in the worksheet that appears where the **Range Xport Formulas** data will be written to will be automatically deleted.

Any formulas that are imported and contain relative addresses are automatically adjusted to the new cell address. If the **Range Xported Formulas** contained a range of A1..D6, and if the cell pointer was located at F1 when **Range Import Formulas** was selected, any formulas from **Range Xport** will be changed to reference their new location in the worksheet. Should cell B6 from the **Range Xported Formulas** contain the formula **@SUM(A1..A6),** the formula would be changed to **@SUM(G1..G6)** when it was imported, using the above example. If you have trouble understanding this, please read "Copying Cells with Relative Formulas" in Chapter 3 of this manual.

The above example gives the effect of having two separate worksheets in one. To integrate data from one worksheet to another, the formulas **Range Xported** must contain absolute addresses. Please refer to the section "Copying Formulas with Relative and Absolute Addresses" in Chapter 3.

Range Import Numbers (/RIN)

This option permits you to take a table of numbers created with

SCRIBBLE! and have those numbers, and any corresponding labels, copied into a worksheet.

To do this, you would select **Text Copy** or **Text Cut** with **SCRIBBLE!** and highlight the range you wished to import into **ANALYZE!**. The data highlighted from **SCRIBBLE!** will appear where the cell pointer is located in the worksheet at the time of the import. Again, if there is any data in the worksheet that already exists in range where the **Range Import Numbers** is being written to, it will be deleted.

The format **Range Import Numbers** uses is somewhat different than the text may appear in **SCRIBBLE!. ANALYZE!** will take text that appears like this in **SCRIBBLE!:**

```
January                        4500
February                       5600
March - a really bad month!    500
```

and make it appear similar to this:

```
      A          B
1  January        4500
2  February       5600
3  March - a      500
4
```

ANALYZE! considers any sentence or phrase that is separated only by a space to be a label. This would allow the label "Quarterly Sales for 1986" to be accepted and not have "1986" in a separate column. If more than one space exists between words or numbers, **ANALYZE!** will check to see if the next entry should be a label or a number. If it is a number, it is entered in the column directly to the right. While you may have many spaces between labels and numbers in a **SCRIBBLE!** document, **ANALYZE!** removes those spaces to place each label or number into adjoining columns.

Notice that A3 contained a long label which **ANALYZE!** chopped off, since the cell space was needed by the number to the right. This is entirely normal. In instances like that, it will be your responsibility to shorten the label, or increase the column width, so the entire label can be viewed.

Range Import Text (/RIT)

This selection allows you to perform a **Text Cut** or **Text Copy** within **SCRIBBLE!** and place the text in an **ANALYZE!** worksheet.

ANALYZE! treats each paragraph from **SCRIBBLE!** (a paragraph is text terminated by pressing the <RETURN> key) as a single cell. Multiple paragraphs are separated by blank cells automatically when the text is imported.

When this item is selected, a prompt will appear requesting the column width for the **Imported Text.** Use the mouse pointer, arrow keys or enter the column width from the keyboard. While you can enter a value of up to 240, the maximum number of columns that can be viewed at one time in an **ANALYZE!** window is 78 columns.

If the column width is decreased, **ANALYZE!** will attempt to "borrow" space from the column to the right. If data exists in the column to the right, the text will be chopped off at the new column width. In cases such as this, you will probably wish to increase the column width so you can view the text properly.

Range Xport

This menu item is selected whenever you wish to take data from an **ANALYZE!** worksheet, place it into a **SCRIBBLE!** document, or place it in another **ANALYZE!** worksheet. **Range Xport** will only copy data, based on the defined data range. If you wish the defined data range removed from the original worksheet, select **Range Erase. DO NOT erase a data range until you have Imported**

your Xported data to the new worksheet. Otherwise, your erased data will be lost!

Range Xport Formulas (/RXF)

Use this option when you wish to take data from one worksheet and enter it directly into another, keeping the labels, number and formulas intact. You will be prompted for a data range which can be entered from the keyboard, highlighted with the mouse pointer or highlighted with the arrow keys.

After performing a **Range Xport Formulas,** the data can be imported into another worksheet by selecting **Worksheet Archive,** Getting another worksheet and selecting **Range Import Formulas.** If you wish the exported data to be integrated with the cell references of the new worksheet, make sure the formulas you are exporting contain absolute addresses. Review the sections on copying relative and absolute addresses in Chapter 3 if you have any difficulty.

Range Xport Numbers (/RXN)

This last option is used when you wish to take a portion of your worksheet and have it entered in a **SCRIBBLE!** document.

When selected, you will be prompted for a data range. After entering the data range, load **SCRIBBLE!** and select **Text Paste** to insert the information from your **ANALYZE!** worksheet into your **SCRIBBLE!** document. This feature should prove invaluable when preparing any type of report containing financial information.

The **Range Xported** will be displayed exactly as it appears in the **ANALYZE!** worksheet. This may mean adjusting cell widths within **ANALYZE!** before exporting the data.

When **ANALYZE!** exports the data, each row of data in the defined **Range Xport** data range is terminated in the **SCRIBBLE!** document as if you had pressed the <RETURN> key. This allows

SCRIBBLE! to treat each row as if it were a paragraph, or in the case of columnar data, as if it were a line.

If you define a data range from **ANALYZE!** that is 78 columns wide and your **SCRIBBLE!** line-length is set to 65, please do not expect the information to appear properly. You will need your **SCRIBBLE!** line-length set to the same width as the data exported from **ANALYZE!**.

CONCLUSION

If you are like many people, you will experiment with this new function just to see what will or will not happen when **Importing** and **Xporting** data from **ANALYZE!** to **SCRIBBLE!**.

Here are a couple of examples so you know what to expect:

- If you perform a **Text Copy** with **SCRIBBLE!** and try to **Range Import Formulas** into **ANALYZE!**, nothing will appear. The only time **Range Import Formulas** will work correctly is if the data is in **Range Xport Formulas** format. To view the format, perform a **Range Xport Formulas** and select **Text Paste** from **SCRIBBLE!**.

- If you attempt to **Range Xport Numbers** and then perform a **Range Import Numbers,** nothing will appear. See the above example for an explanation.

This concludes the Appendix for the **ANALYZE!** electronic spreadsheet. If, after reading this you are unsure of how some of the commands are used, please experiment a little. If you still have difficulty, please contact our Technical Support division, we'll be more than happy to answer your questions.

Notes

Repair/Replacement Order Form

To order repair or replacement for a defective Micro-Systems Software product, please follow these instructions. After calling Micro-Systems Customer Service, mail the following three items together to the address below: 1) This form. 2) The defective component. 3) A photocopy of dated proof-of-purchase, such as your sales receipt. *A product returned without proof-of-purchase is not eligible for warranty service.*

Please print all information and be sure to fill out entire form.

Last name _____ First _____ Middle initial _____

Company name *(if applicable)* _____

Division _____

Street address _____

City _____ State _____ Zip _____

( ) _____

Daytime telephone

Return authorization number _____

Name of product as it appears on manual cover _____

Date of product purchase _____ / _____ / _____
(Month) (Day) (Year)

In accordance with the Limited Warranty on this product, Micro-Systems will, at its option, determine whether the defective product will be repaired or replaced. If the product warranty has expired, or if the product does not qualify for warranty service, you will be charged a service fee. No out-of-warranty service will be performed prior to receipt of payment. You may call Micro-Systems Customer Service at (407) 790-0772 to inquire about the current charge for the service required.

IMPORTANT: Returned authorization numbers must be visible on outside package. Orders without return authorization numbers on outside packaging will be returned.

Mail to:
Micro-Systems Software, Inc.
Product Returns
12798 Forest Hill Blvd. Suite 201A
West Palm Beach, FL 33414

Valid in U.S.A. Countries other than U.S.A. will be subject to shipping charges.

Registration Card

Make sure you qualify for technical support and product updates. Register now!

Registration Number _____

Complete and return this registration card before using this Micro-Systems Software product for the first time. *Please print all information, and be sure to fill out the entire card.*

Last name First Middle initial

Company name (*if applicable*)

Division

Street address or PO Box

City State Zip

( )
Telephone

/ /
Date of product purchase *(Month) (Day) (Year)*

This program will be used for: ☐ Home ☐ Business

This program will run on a machine with: ☐ 512K RAM ☐ 1MEG RAM ☐ MORE ☐ Single Drive ☐ Dual Drives ☐ Hard Drive

Please check all applications for which your computer is used:
☐ Spreadsheet ☐ Wordprocessing
☐ Database Management ☐ Data Communications
☐ Programming ☐ Scientific/engineering
☐ Video Production ☐ Music

Comments

Please keep this card available when calling for technical support.

Product Name Analyze! Amiga

Registration Number _____

REGISTRATION RECEIPT

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 743 WEST PALM BEACH, FL

POSTAGE WILL BE PAID BY ADDRESSEE

MICRO-SYSTEMS SOFTWARE, INC.
12798 W. Forest Hill Boulevard
Suite 202
West Palm Beach, Florida 33414-9982

Thank you for your support and concern of our software products.

I have gained much experience with microcomputer software design by acting as a consultant and custom programmer for several companies, including Tandy Corporation, Timex Computer Corporation, I.B.M., Epson America, Inc., and Panasonic Computers.

As founder of Micro-Systems Software, Inc., and the primary author of all our programs, it is now my intent to create practical and quality software for you, by devoting my full efforts to the MSS Research and Development Division.

Enjoy your Amiga!,

Steven J. Pagliarulo